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THE BACTERIAL TOXINS.*

VICTOR C. VAUGHAN, M.D., AND THOMAS B. COOLEY, M.D.
ANN ARBOR, MICH.

Our object in presenting this paper is merely to outline the theory of the nature and action of the bacterial toxins which we are endeavoring to demonstrate, and to describe our method of work and the results which we have reached through the experiments we have so far made, which are very incomplete and really only a beginning toward the thorough working out of the subject.

We have been led by observation of many facts concerning the pathogenic bacteria and their action in the various infectious diseases, their resistance to heat, to disinfectants and stains, etc., and by the results of some investigations carried on by others and by ourselves with certain species of these organisms to formulate a theory which we believe to be in some respects new, and which may be stated as follows: The specific poisons of the pathogenic bacteria are formed within the bacterial cells, and constitute a part of the organism itself. As we shall mention later, this idea has been held by others, notably by Buchner and by Pfeiffer. Bacteria probably consist of cell membranes with contents in which the poison exists. In at least some of the pathogenic bacteria the toxin does not appear to be an essential part of the cell. We mean by this that some of the pathogenic bacteria may retain their vitality and still not manifest their pathogenic properties. This is well illustrated by de Schweinitz and others in their studies of the tubercle bacillus.

The pathogenic properties of a given bacterium are dependent on the poisonous character of the cell contents and the readiness with which the content is diffused through the cell wall, and this diffusibility is dependent on the solubility of the toxin and the permeability of the cell wall.

An increase or decrease in the virulence of a given bacterium can be explained in only one of two ways. The first possibility is that it is due to a chemical change in the toxin itself. This seems to us highly improbable. The second possibility is that heightened virulence is due to an increase in the amount of the toxin formed within the cell or to a greater permeability of the cell wall, one or both. The third possibility, that increased virulence may be due to more rapid cell proliferation, we reject as a rule, because it is well known that from some cultures of the diphtheria bacillus a more active toxin may be obtained than from other cultures in which there is more abundant cell growth. The relative proportion of cell membrane and toxin content is probably a variable one. It is furthermore probable that with increased cell content the cell wall becomes both thinner and more permeable.

It is probable that the toxins of the different pathogenic bacteria belong chemically to the same group of bodies and that they are proteid in character. Apparently these toxins vary in stability of constitution. This is indicated by the difference in the effect of heat upon them. As we shall show, the toxin of the colon bacillus may be heated with water in a sealed tube, to 184 degrees for one-half hour without decrease in virulence while the cells of the diphtheria bacillus become inert after prolonged exposure to a temperature of 60 degrees. That the cell walls differ in the readiness with which their toxin contents diffuse through them seems evident from the way in which diphtheria and tetanus bacilli induce intoxications while their growth is confined to a very limited area, as compared with the relative innocuousness of the colon bacillus growing abundantly in the intestines, and at the same time containing a highly active toxin.

This theory will require a long series of observations of the characteristics and action of many bacteria before its truth or falsity can be determined, but we believe that we have in the investigations we have carried on during the past few months established, in regard to the bacillus, the bacterium coli commune, certain facts which have an important bearing on the question, and which we hope may lead us in time toward further light on the chemistry of the bacterial toxins; and we feel sure that only when we have light on the chemistry of these toxins will the nature and action of the antitoxins be understood.

The literature of bacteriology and hygiene gives little information concerning our subject. A thorough examination of the publications within our reach shows that although a vast amount of work has been expended on the isolation and identification of some of the bacterial toxins, the progress made has been slow. In fact, it may safely be said that in no case has the chemical nature of the essential toxin of any of the pathogenic bacteria been shown. In the case of the group with which we are at present working, that of the colon bacilli, almost nothing of any real importance has been done toward showing the nature of their toxin; and investigations with any of the pathogenic bacteria along the line in which we are working, namely, the isolation and indentification of a poison which is an essential part of the cell content, aside from any poison which may or may not be dissolved in the medium surrounding the cell, are very rare.

A few communications are, however, worthy of especial notice. Two prominent observers have emphatically stated their belief in bacterial toxins which are an essential part of the bacteria themselves—Buchner in regard to the pathogenic organisms in general, and

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Pfeiffer in regard to the vibrio of Asiatic cholera. Buchner[1] describes his investigations on pus-producing substances in bacterial cells. The chief interest of these papers in the present connection lies in the statement of his belief that there is nothing in the whole category of decomposition products, caused by bacteria, to account for the phenomena of the general infectious diseases, but that the cause of these must be looked for in the albuminates of the bacterial cell itself, and that in some cases, at least, these poisons are only set free on the death and dissolution of the bacterial cell. By this theory he explains the fact that suppuration may be caused by dead cultures of germs which, when living, have not the pyogenic property. Further interest attaches to the similarity of his method of extracting the toxin to those used by ourselves. He first mentions various experiments going to show that sterilized cultures of certain bacteria have the same effect as the living cultures, and others showing that this effect is not due to the mechanical irritation caused by the dead germ. He showed also, by heating with steam under pressure at 120 degrees and by distillation, that the poisonous properties of the culture—in this case the pneumobacillus of Friedlaender—were not due to a readily decomposed or volatile substance. He then boiled his bacterial emulsion in a flask with a reflux condenser, and allowed it to settle, thereby obtaining a bacterial layer under a layer of clear fluid. Comparative injections showed that the poisonous principle was contained only in the germ layer. He carried out similar investigations with seventeen different varieties of bacteria, among which was the colon bacillus. In these he took the growth from agar or potato, rubbed it up to a thick emulsion with water, heated for one hour at 100 degrees and allowed it to settle. In all cases the injection of 1 c.c. of the emulsion after heating produced sterile pus-infiltration at the point of injection. In three cases only after settling did he obtain a clear fluid overlying the germ layer, and in these cases the fluid was non-toxic, while the germ layer caused intense pus formation.

In order to isolate the pyogenic substance from the bacterial cells, he added to the bacterial mass obtained from agar or potato about 20 volumes of .5 per cent. solution of potassium hydrate, obtaining thereby a mucilaginous mass which dissolved at the temperature of the water-bath. A clear fluid was obtained by repeated filtration, and from this the proteins were precipitated by acidifying and purified by resolution in alkali, reprecipitation and final resolution in just enough soda to neutralize the acid in the precipitate. The proteid thus obtained was found to have the pyogenic properties of the original bacterial emulsion. Similar results were obtained with a number of germs, though the most work was done with the pneumobacillus. Although the colon bacillus was one of those worked with, it is to be noted that no mention is made of a poisonous proteid being isolated from it by these methods, and, in fact, we were unable to extract any poisonous substance from this germ by means of dilute alkali.

Pfeiffer's[2] work on the cholera vibrio was carried out with the purpose of proving that the specific poison of this particular disease is a part of the cell content of the organism which is liberated and absorbed only on the death of the vibrio. His method was as follows: Having secured a virulent culture of the vibrio, he made a series of comparative inoculations with cultures treated: 1, by boiling; 2, by passing through a porcelain filter, and afterward heating in the steam bath for one-half hour; 3, by boiling and then passing through porcelain; 4, simply by rubbing up with small quantities of bouillon, living cultures; 5, by killing with chloroform vapor; 6, by killing with thymol; 7, by killing with absolute alcohol; 8, with concentrated solution of ammonium sulphate for twenty-four hours; 9, by drying; 10, by dry heat sterilization; 11, by passing a twenty-days-old 4 per cent. glycerin bouillon culture through porcelain; 12, by passing the glycerin extract of a fresh culture through porcelain. In 1, 3, 4, 5, 6, 7, 8, 9, and 10, the results were positive, the animals either dying or being severely affected, with very similar symptoms in all cases, the most marked of which was the rapid fall of temperature. In 2, 11 and 12 the animals were either not affected or affected very slightly. In 4, a minimum dose was established, smaller for intraperitoneal than for submucous injections, and smaller doses caused an illness terminating in recovery. Cultures made after death, from intra-abdominal injections, did not show multiplication of the germs, and, as a rule, showed diminution in number. Nor were the germs found in the intestines or organs. Pfeiffer did not succeed in isolating and purifying a chemical poison. His conclusion that the cholera poison was a constituent of the cell and liberated only on its death and dissolution was combated more than once, especially by Metchnikoff, Roux, and Salimbeni,[3] who put in collodion sacs living bouillon cultures of the cholera vibrio, and cultures killed by chloroform, and found that when these sacs were placed in the peritoneal cavities of animals the living cultures caused death in a short time with all the symptoms of cholera, while the dead germs had much less poisonous power. Whether or not these experiments of Metchnikoff and his associate disprove Pfeiffer's theory that the poison of the cholera vibrio is liberated only after the death of the organism, is questionable, but at any rate they have no bearing on our theory.

The literature relating to the toxin of the colon bacillus is very meager. Kiessling[4] gives a thorough summary of all work done on this bacillus up to that time. Under the heading of "The Pathological Significance of the Colon Bacillus," he describes the investigations of a number of observers, beginning with those of Emmerich on his "Bacillus Neapolitanus," in 1885, most of which are not of interest in the present connection, as they were concerned with the pathogenic action of the living germ. However, Gilbert,[5] in 1893, demonstrated the poisonous properties of filtered cultures of this bacillus. He injected these cultures intravenously into rabbits, and though they were not uniformly poisonous in the same degree, there resulted paralysis of the striped muscle fibers with blunting of sensibilities and coma; then convulsions, nystagmus, and heightened sensitiveness and reflexes; and finally contractures and death. During the first two stages recovery was still possible, but in the last death was inevitable. Gilbert also concluded from his observations, that the poison was destroyed in the liver and kidneys. Roger,[6] in 1893, described an analogous action of the toxin on frogs. Wyssokowitsch,[7] in 1886, observed that the colon bacillus, when injected into the blood, appeared quickly and in large numbers in the intestines, and as this is possible only through alteration of the intestinal walls he concluded that with the micro-organism there is brought into the circulation some poisonous substance which causes marked gastro-enteritis and deep lesions of the mucous coat of the intestinal wall. On the other hand, Baginsky[8] was unable to obtain from nitrogenous

food contaminated with this organism any substance having a poisonous action on animals.

Though numbers of observers have contributed to the literature of the pathogenesis of the living colon bacillus, since Kiessling's summary was written, the journals within our reach do not show anything having any significant bearing on the question of its toxin.

In 1898, Vaughan and McClymonds,[9] working on the pathogenic germs in cheese, made some observations on the toxin of the colon bacillus found in green cheese, of which the experiments now to be described are really a continuation.

Our own work, so far as we have carried it, has been briefly as follows:

EXPERIMENTS, SERIES 1, FEBRUARY AND MARCH, 1900.

The germ used in these experiments was obtained from a sample of drinking water which was supposed to have caused typhoid fever. It gives the typical colon reactions. One c.c. of a twenty-four hour bouillon culture kills guinea-pigs of 300 to 400 grams weight, within twelve hours, with the usual post-mortem appearances.

On January 31, 17 Roux flasks were inoculated. The growth was removed on February 28, with sterile water and a platinum wire. Centrifugation failed to separate the germs. Absolute alcohol was then added and the suspension was boiled in a beaker and allowed to stand for twenty-four hours, and the germ mass was then collected on a filter. The filtrate was evaporated on a water-bath to a small volume and injected into the abdominal cavity of a guinea-pig without effect. The form of the bacilli was not visibly—microscopically—affected by these manipulations, and they stained readily. The germ mass was then rubbed up in an agate mortar and dried to constant weight in a box water-bath. The dried germ still retained its form and staining properties. One hundred mg. of this dried mass, emulsified with water by boiling, and cooled, killed a guinea-pig on injection into the abdominal cavity, within twelve hours. Section showed the greater part of the germ mass lying in the cavity unchanged and the germs still unaltered in form. Boiling with .25 per cent. potassium hydrate solution does not extract any poison from 100 mg. of the dried germ, nor lessen the toxic effect of the dried germ itself, nor does heating in the autoclave at 130 to 140 degrees, for one-half hour.

Heating in a sealed tube, with water to 184 degrees for one-half hour, forms a milky emulsion which, on microscopic examination, shows granular material with a few unbroken cells. Injection of an amount of this emulsion corresponding to 100 mg. of dried germ into the abdominal cavity of a guinea-pig causes death with the same symptoms as before heating. When the germ mass is separated from the fluid by the centrifuge, both fluid and sediment cause death in the guinea-pig, with the irritant symptoms slight in both cases, but more marked in that of the fluid. Boiling with .2 per cent. HCl and neutralizing has no apparent effect on the toxin.

Two hundred mg. of the dried germ were subjected to forty-eight hours' artificial gastric digestion with a pepsin which was shown by control to be active. At the end of this time the supernatant fluid was poured off from the undissolved portion and an attempt was made to neutralize, but by mistake too much alkali was added. This fluid proved fatal when injected into a guinea-pig, but the symptoms were those of alkali poisoning rather than of the poisoning by the toxin of the germ. The undissolved portion, which proved to be partially soluble on the addition of more water, was fatal when injected in suspension in water—after boiling—while the small amount dissolved in 5 c.c. of water was not fatal, though the animal was markedly affected. In the guinea-pig killed by the suspension, a mass of the undissolved substance was found in the abdominal cavity on post-mortem examination.

The bacterial powder used in this series of tests gives the xanthoproteic and biuret reactions beautifully.

EXPERIMENTS, SERIES 2, APRIL AND MAY, 1900.

For this series a culture of the same bacillus used in the first was taken, but it was rendered more virulent by passing through rabbits until 3 c.c. of a twenty-four-hour bouillon culture killed a large rabbit in one and one-quarter hours.

Sixty moist chambers of 2 per cent. agar were planted with this bacillus, and left for a month at a temperature of about 25 to 30 degrees, and at the end of this time the growth was removed from the greater number and subjected to artificial digestion in an incubator. At the end of three days there was no separation into layers, but there was a cloudy fluid which could not be separated by the centrifuge. At the end of five days there was a separation into a deposit covered by a brownish opalescent fluid, colored probably by the coloring matter from the agar, and apparently free from suspended matter. A drop dried and stained showed only amorphous substances. A flocculent precipitate was slowly formed on dropping into absolute alcohol. The fluid gave the biuret, xanthoproteic and Adamkiewicz tests, and became less cloudy on neutralization with sodium bicarbonate. Ammonium sulphate gave a flocculent precipitate after neutralization. The germ mass was treated with four volumes of absolute alcohol, filtered, washed with absolute alcohol, and the residue on the filter scraped off, dried, and rubbed to a powder in an agate mortar. This powder is rather dark in color and amorphous. It is almost entirely soluble in water and more readily so on the addition of a small quantity of $NaHCO_3$. When boiled with water, cooled and injected into guinea-pigs, it is uniformly poisonous in doses from 4 mg., the largest, to 5/16 mg., the smallest, tried. There is little variation in the symptoms or the time required for killing with these various doses, the pig which received 5/16 dying within twelve hours as well as one that received 4 mg. All the pigs showed marked symptoms shortly after inoculation, often falling within a few minutes and exhibiting some convulsive movements, but rising again and sitting motionless until a few hours later spasmodic movements of the legs began, then shortly they fell on their sides and remained there, continuing the spasmodic motions until shortly before death.

The bacterial powder used in this series of experiments also gave the biuret and xanthoproteic reactions.

These investigations need to be supplemented by a number of others regarding both the toxic action and the chemical nature of the substance we have obtained; and we hope later to be able to carry on similar investigations in regard to other species of bacteria—in fact, we have already begun a study of the bacillus of anthrax. We believe, however, that we are able to draw with some degree of certainty a few conclusions from what we have done already. These are as follows: 1. The colon bacillus in virulent form contains within the cell a toxin which is fatal to guinea-pigs of from 200 to 300 grams weight, in quantities of less than 1 mg. 2. The aqueous extract of the cells of the colon bacillus grown on agar is inert. 3. The entire germ is

highly resistant to heat and to dilute acids and alkalis. 4. The cell wall of the colon bacillus is digested by the prolonged action of artificial gastric juice, which does not alter the toxin. 5. The toxin as thus obtained is insoluble, or but slightly soluble, in dilute acid, but is slightly soluble in water and more readily in dilute alkalis. 6. This toxin responds to the ordinary proteid reactions. 7. The toxin, after being freed from the cell membrane, is not destroyed by being boiled. We will endeavor by further research to determine more definitely the nature of this toxin and will extend our investigations to other bacteria.

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THE TRUE ROLE OF DRUGS IN THE MANAGEMENT OF CONSUMPTIVES.*

SOLOMON SOLIS-COHEN, M.D.

PHILADELPHIA.

Tuberculosis is curable, or rather, if we may use the word, it is recoverable. It is never cured by the physician, but by the patient himself; that is to say, by the natural powers of recovery. These however may be, and usually need to be, stimulated, assisted and directed by wise medical guidance. Under favorable surroundings at least three-fourths of those affected with pulmonary tuberculosis should recover. Many recover spontaneously, even under unfavorable conditions.

SECONDARY ROLE OF DRUGS.

In the physician's management of consumptives—that is to say, of persons affected with pulmonary tuberculosis—drugs play a useful, but a secondary part. The principal means of treatment for the relief or recovery of these patients are included under the general term of hygienic measures; that is to say, life in the open air, with abundance of sunlight; properly selected diet and clothing; the use of water freely, both internally and externally; rest and exercise, prescribed carefully and definitely, according to the stage of the disease and the general characteristics of the patient; the use of air at modified pressures, and the like. These bring about a physiologic reinforcement of the patient's recuperative energy, and this conquers the disease.

HYGIENIC MANAGEMENT NOW RECOGNIZED.

When I began writing on the subject of the treatment of pulmonary tuberculosis some fifteen years ago and in most of my communications on the subject since, these measures in whole or in part have been emphasized; and it is with the greatest gratification that I have observed this much neglected but ancient gospel, emphatically preached by Rush, in America, and Beddoes, in England, more than one hundred years ago, by Sydenham and others much earlier, and of which I have been an humble modern apostle, at last beginning to make itself felt, not alone in medical literature, but in contemporary practice.

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THE OCCASION FOR DRUGS.

I may be pardoned, therefore, if on this occasion I speak of the use of drugs, of what may be accomplished with their aid, and of what it is useless to expect from them. Both in the general course of the disease—whether in its development toward destruction or in its progress toward recovery—and in the incidents and accidents accompanying this course, occasions arise in which the aid of drugs may usefully be sought to promote comfort, to prolong life, or to assist recovery. It is essential, however, that the physician should know definitely the powers and the limitations of the agents employed; that they should be used with definite purpose; and that their use should be sufficiently persistent while needed, but discontinued when its purpose has been accomplished.

What then are the indications for the use of drugs, and what their limitations? To answer these questions it is necessary to have a clear idea of the nature and progress of the pathologic conditions and processes embraced under the head of pulmonary tuberculosis. This is not the place to enter into detail, but certain broad outlines may be noted.

DEVELOPMENT AND PROGRESS OF PULMONARY TUBERCULOSIS. HYPOTROPHY.

In every instance of pulmonary consumption we have to deal with three distinct stages—with a fundamental or primary *(trophic)* stage, and with secondary *(bacillary)* and tertiary *(micrococcal)* stages of epiphenomena. The fundamental stage is a condition of lessened vital energy, lowered resistance, or malnutrition, which is not a mere vague "susceptibility," but a definite morbid state. For this, lacking a better term, we can adopt that proposed by Jaccoud, namely, "hypotrophy." I have elsewhere suggested the term "abionergy," but this involves a hypothesis not accepted by the profession or by science in general, and need not be insisted on. By whatever name we may term this state, it is not merely a general depression of function, but is accompanied with structural changes. In their intimate nature these escape our present methods of research, being probably molecular, and possibly located in the cell nuclei. When the hypotrophic status is inherited, or when it is congenital although not inherited, or when it has been acquired early in life, certain gross structural changes can sometimes be made out. Among these are especially to be noted relative deficiencies in the size of the heart and vessels and certain changes in the shape of the chest and in the physiognomy, to which attention has elsewhere been directed.[1] When it is acquired later in life these gross structural changes are not manifest.

It is in this stage that the recognition of the disease is of the highest importance and that hygienic treatment as well as roborant medication may succeed in averting the succeeding stages of destruction; but unfortunately there are no positive criteria by which it can be infallibly recognized. We can suspect, and the experienced observer can be nearly sure, that he has before him a subject of hypotrophy, but it can not be proved. The early recognition of the early tuberculization of the patient is less difficult.

SECOND OR BACILLARY STAGE. TUBERCULOSIS.

The second or bacillary stage follows the invasion of the bacillus of Koch, and is characterized by the definite histological changes giving rise to the term

1. Consult my article on "Tuberculosis," in Vol. I, of Hare's "System of Therapeutics," Phila., 1891, pp. 724, et seq.

"tuberculosis," and by an accompanying toxemia, of which the principal symptoms are irregular fever, cough, digestive disturbance, some degree of anemia and progressive loss of strength and flesh. The physical signs are now definite; slight percussion change, impairment or exaggeration of resonance with heightening of pitch, progresses to dulness perhaps just below one apex; the respiratory murmur progressively changes toward the bronchial type, cogwheel respiration being often the earliest sign; and there is progressive development, darkening and spreading of fluoroscopic shadows. Anemia of the pharyngeal and laryngeal mucous membranes is often to be observed. Sometimes the earliest overt manifestation is hemorrhage, a fortunate circumstance usually, as it leads to the prompt institution of treatment, and thus often to recovery. Cough is not infrequently absent. In this bacillary stage we have then a functional pathology, impairment of respiratory power, impairment of circulatory power, further failure of nutrition, further bacillary invasion, toxemia.

THIRD OR MICROCOCCAL STAGE. PHTHISIS. CONSUMPTION.

The third and most dangerous stage follows the invasion of various bacteria, principally belonging to the tribes of streptococci and staphylococci, for which the ground has been prepared by the destructive changes (caseation, etc.) of the preceding group of epiphenomena: those, namely, dependent on the invasion of the tubercle bacillus. Further destruction and further toxemia with hectic fever and increased emaciation, perhaps frequent hemorrhages, greater cough, progressive febleness, sleeplessness, night sweats, diarrhea, dropsy, and the like, together with recurrent attacks of lobar and lobular pneumonia and other complications, local and general, mark the progress of phthisis toward death.

Histologically we speak of the secondary epiphenomena as the stage of infiltration; of the tertiary epiphenomena as the stage of softening or cavity-formation. Both processes may be present in different degree and extent in the same lung or in two lungs of same patient.

ACUTE AND RECURRENT TUBERCULOUS BRONCHOPNEUMONIA.

I have excluded from consideration acute disseminated or miliary tuberculosis, of which the pulmonary phenomena are but part of a general process, from which recovery is at least doubtful. Attention must be called, however, to the group of cases of acute tuberculous bronchopneumonia, in which the secondary and tertiary groups of epiphenomena can not strictly be separated, occurring either coincidently or with but slight interval. Then, too, there is a group of cases in which destructive tertiary phenomena occur early, but in limited areas, and with but slight tendency to extension. The progress of the case is frequently interrupted by remissions or even by intermission of long duration.

COMPLEXITY OF SEMEIOLOGY.

Thus a varied and apparently contradictory semeiology arises, but analysis will always show that in some portion of the lung the secondary or tertiary phenomena predominate, and that the general symptoms depend partly on the local conditions, and partly on the predominant toxemia. There are thus minor stages or phases within the major stages.

NECESSITY FOR INDIVIDUALIZATION.

Quite obviously the treatment applicable at a given stage or phase of these complex processes differs from that applicable at any other stage, preceding or succeeding. Moreover, individual patients present great differences in their response to hygienic measures, these differences being dependent on the same constitutional powers or weaknesses that have enabled them to resist, or have made them succumb to some or all of the morbid influences. Thus each case becomes an individual study, and so continues throughout its different phases, and whatever is said concerning the general management of patients at various stages of the disease is to be understood as being thus qualified.

NO SPECIFIC.

We are now prepared to discuss the use of drugs. In the first place, it must be evident that no specific against the exciting causes of the disease or against any of the morbid processes is to be looked for. As the hygienic management of consumptives is designed to build up their vital resistance, so the auxiliary medication must have this for its primary object, incidentally combating special morbid phenomena or groups of phenomena which of themselves introduce special dangers. While I can not go so far as my friend, Dr. Mays, in looking on consumption as a neurosis, there is little doubt that among the failures of nutrition, which prepare the ground for tuberculosis, the nervous system is involved.

NERVINES.

Drugs useful from this standpoint are arsenic, strychnin, cod-liver oil, hypophosphites and other preparations of phosphorus, among which are probably to be included the nuclein group and thymus-gland extract. Strychnin should be given at first in small doses, and according to circumstances may sometimes be increased to very large doses, though only for limited periods. Its use should not be continued indefinitely, as this tends to exhaust nervous structure and nervous energy. Cod-liver oil is a fatty food and seems to have some special suitability to the needs of the nervous structures for aliment. Whether arsenic affects the nerves directly or indirectly through its action on the blood and other tissues, I do not know; but it is to be placed in the first rank as a nerve tonic. These agents are useful in the primary stage, before the invasion of the bacillus, and in the early stages of bacillary action. Their usefulness is less apparent in the later stages, though if recession of morbid phenomena takes place in these stages they may again be used.

DIGESTANTS.

Agents to improve digestion are useful from the standpoint of general nutrition. These do not differ in principle, in method of application, or in character, from the agents used for similar purposes in other affections. Strychnin and arsenic again have application; while lavage or the drinking of hot water and the use of gastric and intestinal antiseptics, sedatives and stimulants; of phosphoric, hydrochloric and nitric acids; of digestive ferments, pepsin, pancreatin, diastase, papain and the like, must be guided by the special symptoms and responses of the individual case.

HEMATINICS.

As a rule there is very little positive anemia in the early stages of tuberculosis, but the same group of hematinic agents that are used in other anemias are applicable here. Thus again arsenic is of service; and iron, gold and sodium chlorid, palladium chlorid, the nucleins, bone-marrow and the like also prove useful.

ELIMINANTS.

It is necessary that the skin should be kept in good condition and that all the eliminative functions should

be properly performed. The daily bathing and sponging tends to keep up the tone of the peripheral vessels and of the skin, while diuretics and laxatives, of which spartein and cascara may be taken as types, are employed from time to time if indicated.

AGENTS ACTING ON THE CIRCULATION.

The condition of the circulation needs separate study, and more specially in the primary stage and in the acute manifestations of the tertiary stage. I desire therefore to call special attention to the usefulness of nitroglycerin in the early stages and of digitalis in the acute processes of the tertiary stage.

Nitroglycerin by its action in relaxing the peripheral vessels both in the systemic and pulmonary circulations, permits the work of the heart to be performed better and with less expenditure of vital energy. Vascular insufficiency is, as we have already noted, one of the characteristics of congenital hypotrophy, and the absence of blood-channels from the histological tubercle is not without significance in this connection. One of the greatest advantages of the use of the inhalation of compressed air with expiration into rarefied air, as well as one of the chief factors in the altitude cure of pulmonary tuberculosis, is the increased distribution of blood and nutrient lymph into the ultimate vascular channels and pericellular spaces. Even without the inhalation of compressed air, nitroglycerin aids such dissemination of reconstructive pabulum, as well as the better collection and excretion of waste which accompanies the improved ultimate circulation.

Digitalis was especially commended by Beddoes as the result of his empiric observation, in cases of galloping consumption, with high fever and rapid pulse, and he reported striking instances of the benefit following its use. I have no rational explanation to offer of this action, unless the inhibition of the heart may account for it, but empirically I can confirm Beddoes' observation. I have frequently seen remarkable reduction of fever and the accompanying group of hectic phenomena follow the use of large doses of digitalis, both in the late stages of chronic pulmonary tuberculosis and in the recurring acute attacks of tuberculous bronchopneumonia, or of lobar pneumonia in tuberculous patients. It must, however, be given continuously and fearlessly, up to the point of tolerance, the only counterindication being evidences of untoward effect on the stomach. Merck's German digitalin may then be used in its place; the dose being from 1/24 to 1/8 of a grain, or even more, thrice daily.

IODIN GROUP.

Of drugs used to combat more or less directly the local and hemic results of bacillary invasion, two groups of agents have stood the test of time—the iodin group and the creosote group. The first is applicable especially in the early stages of pulmonary infiltration; the latter, when destructive changes belonging to the bacillary phenomena have begun, and also when the pyemia and increased destruction of the tertiary processes are manifest. The most useful of the iodin group is iodoform, which must be given in comparatively large doses and over large periods. The dose, however, is to be small at the beginning and to be increased very gradually to the point of tolerance. If there is any disease whatever in which it is a mistake to look for results quickly or to be in a hurry to make changes in the administration of drugs, it is the one under consideration. Chronic cases require chronic, that is to say, persistent treatment, and the organism must often be accustomed gradually to the remedy. Beginning with ½ grain of iodoform three times daily, after meals, the dose may be increased, little by little, until in the course of two or three months it reaches 5 grains, three times daily. Balsam of Peru is an excellent excipient and the addition of a digestive ferment sometimes enables it to be borne by stomachs otherwise intolerant. Iodoform may usefully be combined with iron, with arsenic, with strychnin, and with digitalis, in cases in which these latter drugs seem indicated.

A favorite formula of my own in the early stages of the bacillary disease is as follows:

℞ Iodoformi ..... gr. i-iii
Strychninæ sulphatis ..... gr. 1/40
Arsenii iodidi ..... gr. 1/12
Balsami Peruvianæ ..... gr. ii-v

Mix and encapsulate. Dose: one capsule after meals three times daily.

Sometimes ichthyol is used as the excipient, with or without the Peruvian balsam. Ichthyol has itself been recommended as of use in pulmonary tuberculosis, in doses of 5 grains or more, thrice daily. Crude or refined petroleum may be used similarly.

Flick, of Philadelphia, a careful observer and accurate reporter, states that he has seen much benefit from the inunction of iodoform in cod-liver oil or lanolin. Lately he has substituted europhen for the iodoform, on account of the disagreeable odor of the latter. For the benefit of those who prefer to use iodoform in this way, I would state that attar of rose in very minute proportion will successfully mask the odor. My own experience with the inunction method is slight, and it did not seem to possess any special advantage over the administration of the drug by the mouth. Iodoform dissolved in sterilized olive-oil, in the proportion of 1 to 10, may be given likewise by intratracheal injection, in quantities not exceeding ½ dram.

Powdered iodoform may be insufflated into the larynx, or iodoform dissolved in ether—1 to 10—be applied by sponge, especially in cases of tuberculous laryngitis, after the application of lactic acid or formalin, and the dose need not be measured especially. There is no objection to covering the entire area of laryngeal and perilaryngeal tissues accessible, and doubtless some good effect is due to systemic absorption as well as to the local action. Other iodin preparations are Lugol's solution, compound tincture of iodin, arsenic iodid, iron iodid, and metallic iodin encapsulated with some fatty or mucilaginous vehicle or emulsionized with cod-liver oil; all of which may be used under special conditions not necessary to detail here.

CREOSOTE GROUP.

The creosote group is large and contains a number of useful agents—carbolic acid, creosote, guaiacol, and combinations of creosote and guaiacol. I have not used carbolic acid for internal administration, though it may sometimes be usefully employed locally, in proper dilution, and has been given hypodermically in sterilized olive-oil, in strength of from 1 to 10 per cent., and in doses of from 1 grain to 10 grains. The urine must be carefully watched when carbolic acid or creosote is used in this way. Beechwood creosote is a sufficiently good prepartion, provided a pure article can be obtained. Much of the commercial creosote contains impurities that irritate the stomach and the kidneys, but there are at least two good preparations in the market, and if care be exercised to obtain one of these the drug can be given in very large doses without untoward effect. Beginning with ½ minim three times

daily, it is my custom to increase cautiously up to the point of tolerance, maintaining at that point or decreasing, according to the results in the individual case. I have given as much as 40 minims three times daily. An average dose is 10 minims three or four times daily. It may be given in milk, in which case two hours after meals is a very good time for its administration, as thereby the patient is induced to drink a glass of milk at that time. It may be shaken up with cod-liver oil and taken immediately after meals, or it may be made a part of a compound emulsion of cod-liver-oil. It should not be given in capsule unless associated with at least 5 minims of an oily vehicle to each minim of creosote. Capsules may thus be prepared with morrhuol or cod-liver oil as excipient. When creosote can not be taken by the stomach in sufficiently large doses, it may be given emulsionized with cod-liver oil or milk, by the rectum, and some have given it in sterilized olive-oil hypodermically. Creosote carbonate, commercially known as creosotal, is perhaps the best form in which to give creosote, as it rarely upsets digestion, the taste is not objected to, and in many cases it can be given in dram doses without untoward effect. Such doses may be persisted in for prolonged periods. I frequently give it in hot milk two hours after meals, though it may be given in water or without vehicle, if taken at meal time. The objection to it is its high cost. Recently creosote valerianate and other creosote combinations have been brought forward and are said to possess advantages over those mentioned. I have had as yet too little experience to speak positively concerning this.

Guaiacol, to which some attribute all the good effects of creosote, may be given in the liquid form, just as creosote is given; or its salts, which are tasteless powders, may be substituted. Of these, I prefer on the whole guaiacol carbonate, though in certain cases the benzoate and the salicylate seem to have advantages; the benzoate especially when there is a tendency to diminution of urine and the salicylate when high fever is a marked symptom. The dose is 10 to 60 grains daily, 20 grains being an average dose. Guaiacol potassium sulphonate is a recent addition to the list of combinations and is highly lauded by some writers. The objection to the guaiacol salts also is their cost. Their great advantage is the readiness with which they can be administered, and their lack of untoward local effect. Liquid guaiacol sometimes has seemed to be useful as an analgesic and antiphlogistic application topically in cases of laryngeal infiltration. As its pain-relieving effect is preceded by intense burning, the latter should be guarded against by a preliminary application of cocain, as in the case of other local agents. It is a useful ingredient in external applications to relieve pain; and slowly rubbed in drop by drop, in doses of 20 to 40 drops, the site of application being then covered with cotton and oiled silk, it may serve as a temporary expedient to reduce high temperature otherwise uncontrollable. One must guard against chill following this method.

BALSAMICS AND TEREBINTHINATES.

Another group of drugs useful in controlling morbid conditions, especially catarrhal processes, in the lungs and bronchi, in relieving cough, and in correcting the character of the expectorated matters, is formed by the balsamics and terebinthinates. Of these I would call special attention to myrtol, which may be given in doses of from 5 to 10 minims, dropped on sugar, encapsulated, or emulsionized, just as one would give turpentine, terebene, eucalyptol, or other agent of this group. For the production of results, its use must be persisted in for several weeks at least. Ichthyol also may be given internally in capsule, alone or combined with some of the drugs already mentioned, and seems to have especially good effect in the correction of collateral fetid bronchitis.

For the correction of local conditions in the throat, trachea, and bronchial passages, and in combating the septic processes of the tertiary stage, so much more destructive than tuberculosis in itself, as well as for sedative effect, drugs may be employed by inhalation or by intratracheal injection.

INHALANTS.

For inhalation, myrtol, eucalyptol, thymol, menthol, oil of peppermint, camphor, chloroform, bromoform, creosote, formaldehyde, and ethyl iodid may be used singly or variously combined. The little perforated zinc respirator, designed by Dr. Burney Yeo, is an extremely useful appliance for this purpose, and for continuous respiration by its aid combinations like the following may be used: chloroform, eucalyptol, creosote, alcohol, equal parts; myrtol, chloroform, terebene, equal parts, etc.

ETHYL IODID AND FORMALDEHYDE.

Among these drugs, however, I desire especially to signalize two, ethyl iodid and formaldehyde. The former may be used very simply by merely unstoppering the amber-colored, little-necked, ounce vial in which it should be kept. The heat of the hand is sufficient to volatilize the medicament. The vial may be held to the mouth or nostrils and deep breaths taken for from one to five minutes, according to the effect. This may be repeated as necessary; in cases of irritative cough, as often as every half hour. It is especially useful in cases of laryngeal tuberculosis. I have experimented in various ways to obtain formaldehyde in proper shape for inhalation. The little lamp, by means of which paraform is converted into formaldehyde gas, has seemed on the whole the best. This is allowed to impregnate the air of the room in which the patient remains, menthol or eucalyptol being sometimes volatilized concurrently; or, covering his eyes, the patient sits by the lamp and every now and then gathers in his incurvated palm some of the gas diluted with atmospheric air and inhales that; or paraform tablets may be crushed in the hand, and the endeavor made to get a certain amount of diluted gas from this. Or in a simple wash-bottle inhaler of 12-ounces capacity a solution of formaldehyde in water may be added to glycerin and aromatics, the whole mixture making about 3 ounces. The strength of the formaldehyde solution is from 1 per cent. to 2 or 3 or even 5 per cent., as the patient bears it. None of these methods, and no other method that I have employed, is entirely satisfactory. If formaldehyde gas, properly diluted, could be collected in a reservoir and from this inhaled, as oxygen, nitrous oxid, and the like are inhaled, it would undoubtedly be useful.

PALLIATION OF FEVER.

In the course of the disease, whether toward recovery or death, there are a number of special symptoms and symptom-groups developed, for which palliative measures may be employed. Some of these may be referred to briefly. Fever, that is to say, temperature persisting at, or persistently recurring to, 100 F., or more, needs palliation, preferably by rest and the application of an ice-bag over the heart. And I may here interpolate that a long sea-voyage is the best possible treatment for patients exhibiting this tendency. The coal-tar products may be used cautiously if necessary to give the patient

comfort; they are not curative of the conditions—the intoxication—causing the fever. Much better in many cases is the inhalation of nitrous oxid in the forenoon—i. e., before the expected rise of temperature—usually in two sittings, two hours apart; about 8 gallons mixed with atmospheric air, at each sitting. The mixture is obtained by inhaling pure nitrous oxid through the mouth, the nose being left uncovered. The ordinary cylinder and wash-bottle form the preferable apparatus. Oxygen inhalations are counterindicated.

TREATMENT OF HEMORRHAGE.

Hemorrhage, an alarming accident to the patient, the family and the inexperienced physician, will subside spontaneously in nine cases out of ten, if the patient be put at rest. Cold applications are generally useful, an ice-bag being applied over the heart, or over the seat of bleeding, if that can be located without undue disturbance to the patient. Cold food only is to be given, and in small quantities. Use of the voice is to be interdicted, and laxatives should be given to prevent straining at stool. When necessary, the force of the heart's action can be reduced by aconite in appropriate doses, and cough be checked by opium, codein, or morphin. It is possible that heroin may serve better than the natural morphin. In severe cases, morphin may be given hypodermically up to the point of tolerance. The most generally useful drug to promote coagulation of blood and the formation of permanent clot, sealing the wound in the vessel or vessels, is crystallized calcium chlorid. With this, codein, turpentine, or thymus extract may be associated. The calcium salt is to be given in dilute solution in comparatively large doses, say 15 grains every second hour, for not more than four days consecutively. If medication is still necessary, lead acetate may then be given—say 3 or 5 grains in pill with an equal quantity of tannic acid and perhaps a grain of opium, three or four times daily. After two or three days, aromatic sulphuric acid should then be given, after which, if necessary, the calcium salt may be resumed. Ergot is useless in most cases. Atropin sulphate, say 1/120 grain, given hypodermically at the beginning of hemorrhage will often cut it short. Hydrastinin hydrochlorate is among the useful astringents.

NIGHT-SWEATING.

For night-sweating, agaracin, hyoscin hydrobromate, potassium tellurate, camphoric acid, atropin, strychnin, picrotoxin, and the like, are useful internally, while sponging with alcohol and alum, or with an alcoholic solution of quinin, or dusting with zinc oxid or zinc oleostearate will sometimes render internal medication unnecessary.

DIARRHEA.

Diarrhea is often exceedingly troublesome and not to be controlled by regulation of diet. Among the drugs useful in different cases are arsenic, mercuric chlorid, cupric sulphate, iron sulphate, tincture of ferric chlorid, opium, tannic and gallic acids, bismuth salicylate, benzonaphthol, salol, guaiacol salts, etc. Before using either astringents or opium, the bowel should be thoroughly washed out by the administration of calomel in small doses, followed by a saline laxative, and this by irrigation with hot—physiologic—saline solution. Notwithstanding, however, the combined use of astringents, opiates and antiseptics, this symptom proves rebellious in many cases.

CONCLUSION.

The object of this paper, however, has not been to go into details of treatment or to advocate the use of any special agent in any special condition; above all not to seem to prefer drugs to the hygienic and nutritional measures already sufficiently alluded to, and of which may again be specified open-air life with abundance of sunlight, as the most important of all. I have wished simply to indicate for what purposes drugs may wisely be employed, and to suggest different groups of agents applicable for these purposes, from which choice is to be made according to all the circumstances of the particular patient, time and place. Bearing in mind the limitations of drugs as well as their powers, and carefully selecting them for definite purposes, they may thus be made to fulfil their useful, but secondary part in the treatment of patients having pulmonary tuberculosis.

THE IMPORTANCE OF AN EARLY DIAGNOSIS OF TUBERCULOSIS.*

A. MANSFIELD HOLMES, A.M., M.D.
DENVER, COLO.

The failure to recognize tuberculosis in its incipiency is the result of several causes: Tuberculosis has an insidious beginning. Most patients do not recognize the nature of their trouble until a lesion is well established, and frequently when they consult a physician the disease is well advanced. The symptoms which belong to the incipient stage are not easy of recognition and are frequently misinterpreted by the examining physician. Many patients will not accept the facts until it is too late. Many physicians fail to give the facts at this stage for fear of frightening patients.

These are the principal reasons why tuberculosis is frequently unrecognized until it is too late to hope for relief; and, also, furnish an explanation for the widespread belief that tuberculosis is incurable.

Before beginning to discuss the subject of the early recognition of tuberculosis it seems essential that some definite method of classification should be understood. Almost as many methods of subdividing the disease have been considered as there are those who have given the subject special study. There seem to be few distinct lines of demarcation which serve in making a subdivision that is without criticism. The pretubercular state, the early stage, and the advanced stage are terms which are frequently used; but these terms convey very little definite information, unless they are qualified by a more minute description.

This subject, however, is of too serious import to justify the useless discussion of mere technicalities. The classification which I shall adopt in this discussion rests upon a histological basis, supplemented by the bacteriological principle that a congenial culture-medium is essential for the growth of pathogenic germs. This classification will admit of three fundamental stages:

1. *Pretubercular Stage.*—This stage is accompanied by a diminished resisting power. We have an impairment of function without a change in the structure of the tissues. The tissues are reduced to a more or less weakened state and furnish a congenial soil for the development of bacilli; but the bacilli have as yet not gained an entrance into the tissues and commenced active development.

2. *Stage of Tubercle Formation, or of Constructive Tissue Changes.*—This stage begins with the introduction of bacilli into the weakened tissues and is known as

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early incipiency. We have rapid cell-proliferation and the formation of tubercles or small neoplasms. We have a transformation of tissue without disintegration, accompanied by a further impairment of function. This stage extends to the beginning of tissue disintegration.

3. *Stage of Destructive Tissue Changes.*—We have softening and breaking down of tissue or fibroid transformation and atrophy of tissue, with more or less complete loss of function.

Nature of Tuberculosis.—Many views have been entertained as to the nature of tuberculosis, and may be arranged into three groups: that bacilli constitute the sole factor of tuberculosis; that the soil is the sole factor and that bacilli play a secondary part; the dual theory that the germ and the congenial soil are equally responsible factors.

It is foreign to our purpose to discuss the merits of these views. Let it suffice to say that the dual theory is accepted as the basis of the remarks which are to follow.

THE PRETUBERCULAR OR PREPARATORY STATE.

The conception of the dual nature of tuberculosis renders a pretubercular or preparatory state indispensable. This brings us to the nature of the resisting power of an organism and the methods by which this resistance is reduced.

It is a well-conceded point that the resisting power to disease is measured by protective substances which are elaborated by the organism itself. These substances are believed to be the products of cell-metabolism and are known as antitoxins. When the changes are brought about in an organism which diminish the production of this protective material, the natural defense of the organism is thereby weakened and invading germs meet with little resistance.

Since the resisting power of an organism can be traced ultimately to but one source—the cellular elements of the organism—a strong resisting power is the manifestation either of a strong phagocytic power, or of a strong antitoxic power, or of both combined. Furthermore, since antitoxins are the metabolic products of the body-cells, a potent antitoxin presupposes vigorous cells; and inversely, if the potency of the antitoxins is feeble, it presupposes a feeble cell-activity. Hence, if the vital forces of the body-cells of an organism are too feeble to produce antitoxins of standard potency to protect it against a certain species of germs—which normal organisms of the same species are able to resist—its resisting power is impaired.

On the other hand, if it should be claimed that the resistance to tuberculosis depends on a vigorous phagocytosis, a strong resistance to the disease presupposes vigorous body-cells; and inversely, a feeble resistance presupposes weak and poorly nourished body-cells.

With this explanation of the pretubercular state we have a rational hypothesis on which we can rest. It furnishes an explanation why persons in this state readily develop tuberculosis, and offers an argument why we should strive to recognize this condition.

The pretubercular state, therefore, may be defined as the condition of feeble activity of the body-functions, producing in consequence a diminished potency of the protective substances of the organism, thereby furnishing a fertile soil for the development of the bacilli of tuberculosis.

The influences which aid in the development of tuberculosis are of two varieties: predisposing factors, and exciting factors. The first variety comes with a bad family history. Persons possessing these factors may be recognized as possessing the following characteristics: a frail organism with feeble functions; narrow chest; drooping shoulders; diminished chest expansion; weak nutritive processes and feeble powers of endurance. The existence of these predisposing factors is evidence of a weak resistance to disease and often may be recognized early in life. To those familiar with the early signs of tuberculosis the significance of these factors needs no comment. To the predisposing factors we must add a class of exciting factors. These are the influences which tend to diminish the already weakened resistance of the individual. To a great degree these factors are under the control of the individual. Examples of this class are insanitary surroundings; sedentary or irregular habits; dissipation; indoor occupation; prolonged overwork; and serious illness. Few persons can withstand the prolonged action of these exciting factors without yielding their resisting power. Especially is this true of individuals who have inherited a weak resistance. Sooner or later opportunity for infection will be presented and persons with a weak inheritance will imperceptibly and unconsciously pass from the pretubercular state into the stage of actual tubercle formation.

The duration of the pretubercular or preparatory state varies according to the degree of the impaired resistance of the individual and the nature of the existing factors. An early recognition of the pretubercular condition as described, and an early attempt to correct it, may enable the individual to recuperate his forces before bacilli gain a lodging in his tissues. Many a person may thus, by judicious care, prevent the actual development of tuberculosis, although there may be a strong predisposition, and ultimately he may die of some other disease. Unfortunately, however, much time is frequently allowed to elapse; the unfavorable influences are allowed to continue; the patient refuses to heed the signals of alarm, and before he is aware of his condition, active incipient tuberculosis is established.

THE STAGE OF TUBERCLE FORMATION.

This stage dates from the time when tubercle bacilli gain admittance to the weakened tissues and begin active development. The chief object of this paper is to collect and classify the evidence which points to the existence of the incipient stage.

Classification of Evidence.—The total evidence of this most critical period of the patient's history may be classified as follows: 1, family and personal histories; 2, clinical symptoms; 3, physical signs; 4, microscopical evidence—blood and sputum; 5, X-ray evidence; 6, tuberculin test.

The early evidences are by no means uniform in the order of their development. The evidences most frequently observed and significant of approaching danger, if properly interpreted, are the following: Impaired nutrition, loss of appetite, gastric and intestinal disturbances, accompanied by loss of weight and strength; dyspnea and fatigue after light exercise, accompanied by small, rapid and variable pulse; slight but persistent cough in mornings and on deep inspiration; impoverished blood state; hectic flush, hemorrhage, altered or suspended menses; sore throat, hoarseness and aphonia; pleurisy pains; glistening eye, dilated pupils, leaden hue of the sclera; insomnia, night sweats; subnormal morning temperature and afternoon or evening fever.

The Value of Early Evidence.—As to the importance to be attached to the early symptoms of tuberculosis it is well known that many erroneous opinions prevail. In this connection it might not be amiss to note a few

points, although on account of limited space many valuable points must be left unnoticed.

Chief among the misinterpretations of diagnostic evidence is the altogether too-prevalent opinion that the presence of tubercle bacilli in the sputum is one of the earliest manifestations of the disease. During the period of tubercle formation bacilli are located in the deeper tissues of the body. During this period bacilli rarely make their appearance in the sputum, notwithstanding patients are already suffering from tuberculosis. When bacilli are found in the sputum it is evidence that the disease is well established; while if bacilli are not found, their absence is not sufficient evidence to exclude tuberculosis. Therefore, for diagnostic purposes in the early stages of tuberculosis I am of the opinion that we overestimate the importance of the examination of the sputum.

A series of clinical symptoms invariably precedes the breaking down of tubercles and the appearance of expectoration containing bacilli. For the purpose of making an early diagnosis it is therefore of special importance that we should be able to recognize and properly interpret these early symptoms.

The cogwheel respiration has for some time impressed me with its diagnostic value of early areas of pulmonary infiltration. This, to my mind, is underestimated as an early symptom of pulmonary tuberculosis. This phenomenon is frequently observed when no other stethoscopic evidence of the disease can be detected, and subsequently other symptoms of tuberculosis develop. I have observed this phenomenon more distinctly during the latter part of forced inspiration and also find it synchronous with each cardiac systole. The areas over which it is elicited are local and circumscribed. It seems to be increased with the force of the heart and therefore is more distinct after light exercise.

Let us briefly consider the factors involved in the production of this symptom. During forced inspiration the entire available lung space is occupied by air; the lung tissues are compressed and, for the time being, make greater pressure against the pulmonary vessels; this in turn tends to prevent the vessels from expanding under the heart's contraction. Infiltrated tissue possesses diminished elasticity. Therefore the blood-vessels in a circumscribed area of infiltration are unable to enlarge their caliber under the increased blood-pressure accompanying each beat. This diminished compensation of the blood-vessels of the infiltrated tissue necessitates an increase of friction of the blood against the walls of the vessels in these areas; and this increased friction is further increased during inspiration. I would not be understood as believing that this phenomenon is always present or that it is always significant of tuberculosis. I believe, however, that it is evidence of impaired functional activity of small areas of lung tissue. Therefore whenever I recognize this characteristic respiration I suspect areas of diminished resistance and endeavor to keep the patient under close observation for further evidence of tuberculosis.

A rapid and variable pulse is an early symptom of pulmonary tuberculosis of no small significance. This is especially pronounced after moderate exercise. Therefore the recognition of this symptom invariably calls for a careful physical examination of the chest for initial areas of infiltration.

Cough is often the first symptom to attract the attention of the patient. I have, however, frequently seen patients in incipient and well-advanced stages in whom there had been no complaint of cough or chest symptoms.

Pleuritic friction sounds may almost always be considered of tuberculous origin, and are often early symptoms.

Râles do not properly belong to the early stage of tuberculosis. They are frequently present when the area of infection is very limited. But in such patients the diseased area may have existed some considerable time before the tubercles undergo softening; then râles become recognized.

Hemorrhages are often the first symptom of the local disease. Hemorrhages are not always due to a tubercular lesion. They may result from violent exercise, physical injuries or other causes; but a hemorrhage should serve as a warning to a patient that a lesion exists in the lung which offers a fertile soil to tubercle bacilli; and furthermore, while such a condition exists, the patient is in constant danger of becoming infected. Such persons should exercise great precaution to avoid infection and at the same time make use of every possible means to restore the injured tissues to their normal state by appropriate rest and tissue nutrition.

I have found a study of the blood an important factor in revealing impaired metabolism and a low state of the vital functions. For years I have kept records of the blood and sputum in all cases of tuberculosis. A study of these records is evidence that the blood phenomena are of greater service in revealing the actual condition of the patient than those furnished by the sputum. The nature of the study has been a differential estimate of the leucocytes made from a stained film of blood and a study of the morphological appearance of these cells. The limited time alloted to a paper of this nature will not permit of a description of the phenomena presented by tuberculous blood, especially since a description of these phenomena has been attempted in former articles.[1]

A subnormal morning temperature is one of the earliest and I believe most valuable means of revealing the pretubercular and incipient stages of tuberculosis. When persistently present we may be certain of a low vital state. Frequently a subnormal morning temperature is unaccompanied by an afternoon or evening fever. I am inclined to believe that when a subnormal morning temperature persistently continues it points to a pretubercular state, and that the patient is approaching dangerously close to the incipient stage; also, that when it is accompanied by afternoon or evening fever it is strong evidence of actual tubercle formation. It should be remembered that many tuberculous patients do not develop fever, and yet these persons almost invariably have a subnormal morning temperature. It should be noted, however, that before a marked subnormal temperature or any other symptom should be accepted as evidence of tuberculosis it should be supported by other signs of danger.

This suggests the inter-relationship of symptoms. We should bear in mind that though a single symptom is evidence it is not sufficient to confirm a diagnosis. We rarely, if ever, find an important diagnostic symptom of incipient tuberculosis unaccompanied by other important symptoms. The intimate relationship between symptoms is therefore a point not to be overlooked in making a diagnosis. For example, with impaired nutrition, loss of appetite and gastric disturbances loss of weight and strength will follow. Let these symptoms continue and the patient will soon experience fatigue after light exercise, accompanied by a rapid and variable pulse. An impoverished state of the blood is also inev-

1. Medical Record, Sept. 5, 1896, p. 325; March 13, 1897; JOURNAL A. M. A., xxix, 17, p. 828.

itable. Thus the symptoms will multiply and the resisting power of the patient will imperceptibly diminish; and yet, notwithstanding the accumulation of evidence the patient will rarely acknowledge that he is in danger. He realizes, however, that he is more susceptible to exposure; takes cold more readily; recuperates more slowly. A slight catarrhal condition often remains. The patient continues his occupation and makes no effort to remove the influences which are daily increasing the danger. Up to this point how many patients suspect tuberculosis? How many consult a physician? And if the physician is consulted, how often is tuberculosis overlooked for the grip, bronchitis, or some other less dreaded malady?

The Neglect of the Early Signs of Warning.—Examples are all too numerous where the early signs of warning have been unheeded. Inevitably the symptoms progressively develop and the patient passes from the realm of doubt to one in which the most positive evidence is present. The diagnosis is finally accepted after the disease has made rapid progress; but during this period of delay a large percentage of patients lose their only chance of recovery.

Finally, unless we become familiar with the symptoms which accompany the "pretubercular state"—symptoms which develop during the period which leads up to actual tubercle formation—the most valuable period for treatment is lost. Therefore with each case of suspected tuberculosis an important question is presented. How can doubt be removed and the diagnosis confirmed?

On this point I feel that we are safe in adopting the following rule: When the characteristic symptoms which usually accompany incipient tuberculosis are present and persistently continue and we are unable to account for them from other causes, we are justified in suspecting concealed tuberculosis.

The Tuberculin Test.—After having considered the symptoms, the history, the physical signs and the general appearance of the patient, if doubt remains we have a court of last appeal—the tuberculin test. Until recently we were often obliged to remain in doubt in incipient cases, but since the diagnostic value of tuberculin has been established we have no excuse for delay when the symptoms are sufficiently marked to point to tuberculosis. I wish to record my confidence in this means of settling doubtful cases. The danger of tuberculosis is too great to justify our remaining in doubt when we have a reliable diagnostic agent at our command, and especially so since there is little or no danger when it is properly administered.

I prefer to administer the tuberculin late in the afternoon or evening. If a tubercular lesion exists, the reaction usually comes from six to twelve hours later. As previously stated, I find the subnormal morning temperature quite as significant of tuberculosis as the afternoon fever. Therefore if the tuberculin is administered in the evening and a morning fever follows its use, it is evidence of a reaction and points to a tubercular lesion. If no reaction follows the initial test an interval of a few days is allowed to elapse and a second test is administered, and finally a third.

If the tests are properly administered and no reaction is experienced we may feel safe in excluding tuberculosis. It is well, however, to repeat the test at short intervals if the patient's condition remains unimproved.

The use of tuberculin as a differential agent is a subject with many problems awaiting solution. The nature of the reaction, if any, which may be experienced by persons in the pretubercular state and the dose that will be tolerated before a reaction may be expected, are subjects which should call forth our best efforts and most careful observations.

Treatment.—The essentials of successful treatment are alimentation, medication and environment. Malnutrition is a constant condition in tuberculosis. Poor digestion and non-assimilation are always present to a greater or less degree. Hence, a correction of this condition is one of the first points to be considered in therapy. Overmedication is too frequently practiced. Any treatment which impairs digestion is injurious.

The ability to react to treatment depends upon an early recognition of the disease, the degree of impairment of the nutritive processes, and an early correction of unfavorable environment and modes of life.

A properly-selected climate is essential, but patients must seek it early. The advantages to be gained from climate will depend upon the amount of time spent in the open air and sunshine, the thorough ventilation of the living and sleeping rooms, and the maintenance of a normal state of the digestive functions. In conclusion we may summarize as follows:

1. The fact should be more generally recognized that if the vital forces become impaired from any cause whatever, the resistance to the tubercular infection is diminished and the danger of infection increased. Prolonged overwork, dissipation or exposure weaken an organism. The tissues of such persons constitute a fertile soil for the infecting germs. When the germs are brought in contact with the weakened tissues they find favorable conditions for propagation. This marks the actual beginning of tuberculosis.

2. It should be remembered that an early diagnosis is of supreme importance. If we hope to secure good results we must resort to means of examination which will enable us to detect the disease before it has become firmly established.

3. There are early symptoms which make their appearance long before the stage of expectoration.

4. Expectoration is frequently present for a considerable time before bacilli can be found.

5. The diagnostician who delays for the appearance of bacilli in the sputum fails to diagnose the disease in its incipiency and loses the most valuable period for treatment.

6. When the early symptoms are present and no other cause can be found to account for them, we are justified in suspecting tuberculosis.

7. Before arriving at a definite diagnosis we should consider well the previous history, the general appearance of the patient, and the symptoms. After carefully weighing all that can be secured from such a study we should resort to early and repeated physical examinations of the chest; a bacteriological examination of the sputum, if the disease has advanced to this stage; a microscopical examination of the blood; and if doubt remains we should finally resort to the tuberculin test.

8. After the disease is discovered the fact can not be too strongly emphasized that patients can not remain surrounded by insanitary conditions and regain their health.

9. With the exercise of greater care on the part of both physicians and patients in recognizing the early symptoms of tuberculosis, and a more rational use of means to prevent infection, we may expect fewer cases of tuberculosis and a greater percentage of cures.

205 Jackson Block.

DISCUSSION ON PAPERS OF DRS. SOLIS-COHEN AND HOLMES.

DR. WM. H. THOMPSON, New York City, by invitation, opened the discussion. He said that the subjects for discussion that had been initiated already, by these two papers, were so numerous that the Section might spend not only the rest of the afternoon, but a day or two in going over them. He, therefore, would refer to but one or two points. In the first place, when we speak of tuberculosis, it appears as if we have in mind two almost distinct diseases. The first is uncomplicated tuberculosis, the second is complicated tuberculosis. In the former, the tubercle bacillus is not associated with other bacteria. This condition we do not find in the lungs, but we do find it in serous membranes, the peritoneum, for example. Take a case of general tuberculosis of the peritoneum. He had seen the abdomen opened by surgeons and they had found the peritoneum a mass of tubercles; they had then closed it up, for the patients to die, but to their surprise the patients got well. This is not the course of pulmonary tuberculosis. One reason for this is that we have the infection in a tissue or organ that is never at rest, but twenty or thirty times a minute, it moves in the respiratory act. Just as a sore on the leg, if it were rubbed twenty or thirty times a minute, night and day, it would not get well. So if you have an infection with tuberculosis, the constant movement and irritation sets up an ulcerative process and there is secondary infection with pus organisms. Further, wherever the ulcerated process occurs, there is an opening for additional tubercular infection. There are, therefore, in some parts of the body, simple infections with the tubercle bacilli, but in the lungs there is always compound infection. Another point is that the tubercle bacillus can have no antitoxin, because its duration is not self-limited. In acute pneumonia, on the contrary, you have a condition which passes through its course in a few days and then ceases its activity; not so with the tubercle bacillus, it has an unlimited life. The speaker said that he was the first physician in New York who had a supply of Koch's tuberculin. He never personally had any faith in tuberculin, but had a great deal of faith in diphtheria antitoxin. Diphtheria being a self-limited disease can have an antitoxin, but tuberculosis can not. Professor Loomis, who followed him in hospital service, also had doubts as to the specific effect of tuberculin. An important point in pulmonary tuberculosis is to know the time when infection takes place. You see a man 20 or 30 years of age, with signs of beginning pulmonary tuberculosis. When was he infected? He might have become infected as a child, when he was 1 year old, and the disease for some reason did not find a favorable moment for development until twenty or thirty years had passed. This is now the general view of the pathologist. About two years ago there was a discussion at the Pathological Society of London, published in six numbers of the *British Medical Journal* and *The Lancet*, in which the fact was brought out prominently that there are many cases of infection in childhood, but that it does not develop into pulmonic tuberculosis usually until in adult life. Hirsch, who found in adult autopsies more than 75 per cent. which showed tubercular lesions, is of the opinion that the entrance of the tubercle bacilli into the body is usually with the milk, as in a child. This has been demonstrated over and over again. The tubercle bacillus finds its nidus with the serous membrane, and keeps on doing its specific work, and emaciation and other physical changes finally result. What do we mean by emaciation? It is not a simple loss of fat, but it means a loss of every part of the body, except the nervous system, which never emaciates. The peculiar tubercular facies, or physiognomy has been referred to. He would recognize it at a glance. Every long bone is thin, the muscles of the neck are ribbon-like; every rib is long and thin, the hands and lips are bloodless—therefore, before examining the chest, you recognize that you have to deal with a condition in which there is a deposit of tubercle. That is in an adult, and these changes of development have been brought about because he has been suffering from that very thing since early life. He fully believes that we can do almost nothing against pulmonary tuberculosis. He feeds his patients fresh meat, gives them cod-liver oil for its influence on nutrition, and gives them iodin, arsenic, for the same reason, to improve the nutritive powers. But when he has done that, he asks what he has done with the tubercular infection per se? If the patient has a soft pulse, he gives him nitroglycerin. He needs protection from pus organisms. Have we any remedy for this? Yes. Oxygen. Turn the patient out-of-doors. There is one remedy that will aid, that is creosote, if the stomach bears it. Other remedies may be employed for special needs, but none of them are of more importance.

DR. J. N. UPSHUR, Richmond, Va., believes the cardinal principle in the treatment of tuberculosis is to preserve the integrity of the stomach, so as to antagonize action of these agents which cause loss of nutrition; further, that the great means to promote this action of the stomach are abundance of sunlight and fresh air and allowing only such foods as are easily digested. And in this line, the fewer drugs you put into the stomachs of patients, the better for them. He considers no drugs of use except in the line of improving nutrition of the body. He has faith in strychnin, because it strengthens the heart's action, increases the general integrity of the muscular system, and because it puts the patient in a position where he can take best advantage of the fresh air and sunlight. One of the most important questions is that of environment. He referred, in illustration, to the present condition of the southern negro, in contrast to his ante-bellum condition. Then his black, greasy skin and well-nourished body, showed that he worked in the country where he got the most fresh air. He had an abundance of corn bread, of fat bacon and fresh vegetables. He lived in well-ventilated apartments, and was obliged to keep early hours. The speaker remembers these happy creatures, whose songs were heard all over the land. Their health was an object of intelligent care, at that time, and they were rarely sick, and, when ill, they were cared for. But now the picture has changed. The environment of the negro is different. He moves to the town. He lives upon partly-tainted meat and stale vegetables, and eliminates from his diet corn bread and bacon. He is overcrowded in his sleeping-rooms, his habits are irregular, and he often uses alcohol to excess. Now, what is the result of this contrast? Before the war, pulmonary tuberculosis in the pure negro was unknown. At the present time it is so general that the race is becoming decimated. It is increasingly frequent and of itself will solve the social race problem. The speaker differs with Dr. Solis-Cohen in the recommendation to use nitroglycerin. It causes prostration and nausea, and a soft pulse, with dilatation of the retinal vessels; but the cardinal principle is that the weak suffer from it more than the strong. Moreover, it reduces the oxygen-carrying power of the blood and interferes with the function of the red blood-corpuscles. The nitroglycerin produces its effects by paralyzing the blood-vessels and reducing blood-tension. What is desired, on the contrary, is to obtain increased circulatory power to improve general nutrition. Strychnin is the preferable agent. Nitroglycerin is positively contraindicated in a condition like pulmonary tuberculosis in his opinion.

DR. S. SOLIS-COHEN said that he had been misunderstood with regard to the use of nitroglycerin and that he does not consider it applicable in the late stages when the pulse is rapid and of low tension. On the other hand, in the prebacillary stage, when improved circulation, local and general, is necessary for nutrition, it is extremely useful. He does not rely on drugs and holds the view that there is no true specific for consumption, but in certain conditions, as stated certain drugs are useful.

DR. A. MANSFIELD HOLMES—It is a recognized fact that the best results are obtained in the treatment of pulmonary tuberculosis when we attack the disease in the early stages. whether we discover the bacillus or not, it is very vital to the patient that we recognize the disease early. It was not the purpose of my paper to claim that it is possible to detect the very moment when the bacilli find a lodgment in the tissues. I wish to lay special stress on the point of localizing the disease at this early period as offering the greatest opportunity for therapeutic measures and the favorable moment for successful treatment.

THREE CASES ILLUSTRATING CEREBRAL COMPLICATIONS OF OTITIS MEDIA SUPPURATIVA.*

CHARLES W. RICHARDSON, M.D.
WASHINGTON, D. C.

It is not to be wondered at that, however brilliant the diagnosis may be, and however skilfully the operation may be done, success does not always attend work along the line of otitic cerebral surgery. The localization of the lesion is not always clear. Lesions may exist other than those made clear through the grouping of symptoms, and the pathological changes exposed may have progressed so far as to preclude the possibility of successful issue, all of which are independent, in the light of our present knowledge and skill in diagnosis and surgical intervention. It therefore becomes incumbent upon us to report not only our successes, but more imperative to report our failures, as through them not only we, but likewise others may profit. I fear that we are too prone to report our successful cases and too apt to forget our failures. To be sure it is no disgrace for one to fail in relieving a helpless or moribund patient, but nevertheless the human mind is so constructed as not to wish to subject failures to the close scrutiny of criticism. I shall report to you two fatal cases of sinus thrombosis and one of cerebral abscess.

CASE OF SINUS THROMBOSIS, No. 1.—On Sunday evening, Nov. 18, 1898, I was requested to see in consultation a patient who had been sick for six or seven weeks with chills and fever, and was told that the reason for my being called was on account of an otitis media purulenta, which had been latterly thought to have some relationship with the general condition. The patient was a man of 60 years of age, probably the average height, and well nourished. The physician in attendance gave me the following history. The patient had had a suppurative otitis of the right ear for many years, and during the past year, under the care of Dr. W. K. Butler, a polypus had been removed from this ear. The patient had been sick about two weeks previously with symptoms that simulated those of malarial fever. He had had chills followed by fever, the temperature rarely going above 101. The sweating stage was usually very pronounced. There had been almost constant headpain, located over the parietal. Several days before calling me in attendance he developed vertigo, and the Doctor noticed that there was tenderness over the mastoid region. On examination of the patient, I found him apparently mentally normal. He recalled incidents and answered questions intelligently, and in various ways showed perfect cerebration. There was pain noted on deep and firm pressure over the antrum mastoideum, and tenderness of an exquisite character on slight pressure over the point of exit of the emissary vein. The jugular region appeared quite normal, although there was some tenderness on pressure along the vein high up in the neck. The patient complained of intense vertigo and persistent headache. The facial expression was bad, and the skin sallow. The tongue was dry and foul and the bowels constipated. The pulse was good in volume, but slightly irregular. The pupils reacted normally, and there was no evidence of facial or other paresis.

Examination of the ear elicited no noticeable swelling or redness about the mastoid. The auditory canal was filled by an offensive pus, which was cleared away by syringing. Inspection showed that there was complete destruction of membrane, with exfoliation of ossicles. A small granulation was noticed at the posterior superior margin of the meatus. I confirmed the Doctor in his fears of intracranial complication, and gave as my opinion that we had before us a case of sinus thrombosis of the right sigmoid sinus and advised operative intervention. An ice bag was applied to the mastoid and calomel given. The next day the patient was seen again, and we found he had had a bad night, slightly delirious, and had a severe chill, with a temperature of 104. The mental condition was not quite as clear as on the previous evening. There were doubtful evidences of aphasia. Pulse was intermittent. The patient was immediately removed to the Columbian University Hospital and operated on at once.

At the time of commencing the operation the patient's condition was bad. A free incision was made through the soft tissues, as in the usual mastoid operation, and the mastoid well exposed. From the superior end of the incision, a second incision was carried backward almost to the occipital protuberance. The flaps were dissected up, exposing a roomy field. The mastoid was opened through an ivory-like process. Just before reaching the antrum, a nasty, offensive, syrupy, currant-colored fluid was exposed. The mastoid was cleaned up into the antrum and the exposure of the sinus was immediately resorted to. With the aid of rongeur forceps, the sinus was exposed throughout its whole length. The walls were found to be gangrenous, varying in color from a pasty white to green and black in spots. The wall was opened and the vessel found to be filled with a nasty, broken-down clot. The curette was used, and by following up the blood-clot posteriorly within the sinus wall the circulation was restored in this direction. The blood was stilled by a packing of iodoform gauze. Dr. Van Rensalaer then exposed the jugular in the neck. The vessel was found to be collapsed, and the clot therein had undergone organization, so that it was almost impossible to separate the walls of the vessel from each other or from the clot. The vessel was removed. No circulation was established from below. The wounds were closed and dressed and the patient placed in bed. The patient showed only slight shock after the operation and his general condition was about the same as previous to the operation. After recovering from the ether he was as rational as in the pre-operative period for several hours, when he lapsed into a semi-comatose state with muttering delirium. The patient died twenty-six hours after the operation, as a result of the intense sepsis. During the period following operation and before death he had two distinct chills, with a temperature ranging from 102 to 106. Autopsy was not permitted.

CASE OF INFECTIVE THROMBOSIS, No. 2.—On Nov. 25, 1899, there was admitted into my service at the Episcopal Hospital, John J. Murphy, white, aged 25, a farmer by occupation. This man had had during the previous summer an otitis media suppurativa, which ran its usual course until the middle of October, when there was developed considerable pain back of the ear over the mastoid region. This pain continued for about two weeks, when there was added to it another symptom, a swelling over the mastoid, which gradually increased until the patient presented himself at the hospital. As will be seen by the history of the patient, he evidently had a mastoid abscess of about six weeks'

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duration when he entered the hospital. The mastoid swelling was intense and extended up to near the vertex of the skull and well down to the tip of the mastoid, showing a great, boggy, fluctuating mass. His general condition was bad, his temperature 100.8, pulse 70, respiration 18. His skin was sallow and he presented a decidedly emaciated appearance. I saw him first on November 25 at 8 p.m. He was operated on the next day at 4 p.m. This was the ordinary mastoid operation, and the whole cellular structure of the mastoid was found to be completely destroyed. At the time of the operation there was a slight inflammatory swelling in the neck just below the tip of the mastoid. As is often the case, where there is no fluctuation, this cervical cellulitis subsides after the opening of the mastoid cells and the evacuation of the pus, so it was therefore decided not to interfere with this condition. The patient continued in good condition until November 30, when the first dressing was made. The temperature that morning was 102.6, the first decided elevation of temperature since the primary operation. When the dressings were removed it was noticed that the induration in the neck had broken down and formed a large abscess cavity. A free incision was made, extending down over the neck to a point on a line with the upper border of the larynx. This was followed by the evacuation of a great amount of pus and broken-down tissue. The pus cavity extended up under the lower jaw and back under the trapezius muscle. The patient's condition continued along fairly favorable, with nearly normal temperature, varying from 98 to 99.6, until December 15. At this time there was noticed a commencing induration in the anterior portion of the temporal region. The patient was then etherized and this condition was opened up, when it was found that deep down under the temporal muscle there was a collection of pus. On pressure over this boggy mass, I noticed that the pus issued, not between the temporal fascia and the periosteum, but into the depths of the wound in the mastoid itself, showing that there was a direct connection between the pus cavity in the temporal region and the mastoid cells, or in other words, that the pus was evidently entirely within the bony walls. I therefore decided to continue the incision from the anterior portion of the temporal region directly backward to my mastoid wound, and upon opening this flap and throwing it back I found that just above and in front of the zygoma there was a carious perforation of the outer table. I then inserted a probe and found that it would extend well up through the squamosa into the parietal bone between the outer and inner table. It is quite evident that I had a decided case of osteomyelitis. I, therefore, with a rongeur cleared off the whole outer table of the squamosa and the lower half of the parietal bone until I came to healthy osseous tissue. This was followed by a curetting of the outer surface of the inner table of the squamosa and parietal bone. The patient's condition then continued fairly well, with a slight septic temperature, varying between 99 and 100 for four or five days, when the temperature again dropped to the normal and so remained, the patient apparently improving in his general condition during this period. On December 25 the temperature again showed a slight elevation, running up to 102.2. At this time he complained of pain in the occipital region and showed slight indisposition to sleep. On December 26 the temperature ran up to 104.2. At this time there was noticed a collection of pus well back in the occipital region. The abscess cavity was opened, and an incision was carried forward, connecting with the original mastoid wound. It will be seen by these frequent small abscess formations and the osteomyelitis which developed in the squamosa and the parietal bone, that the patient was in an intensely septic condition. The patient's condition then continued fairly well, the temperature dropping back to the normal, and with improvement in his general condition again, until January 2, when another alarm was sounded by the temperature jumping up to 102.4. I watched carefully for any evidences of further infection on the surface of the head and neck, and could see no reason for suspecting pus about the wound in the neck or elsewhere in contiguity to the wound. There was practically no pus issuing from the wound and it was granulating up in excellent style. At 11:30 on January 3 the temperature ran p to 104, and at 1:30 of the next morning, January 4, it reached 105.2. This was followed by profuse perspiration. The same day at 3:30 he complained of chilly sensations and nausea, the chill lasting twenty-five minutes. The temperature ran up to 104.8. On the next day, although his temperature remained normal practically throughout the morning, I decided that the patient had evidently a septic sinus thrombosis involving the sigmoid sinus and that immediate operative interference was demanded. The operation was done in the afternoon of Jan. 5, 1900. The old wound was opened up and an opening made into the osseous structure, which was found to be very dense over the sigmoid sinus. The sinus was exposed at the knee and carried backward an inch or more and opened up well down toward the bulb. The walls of the sinus were tense and slightly discolored, and upon opening it was found to be filled with broken-down clot. I curetted out down to the bulb and obtained a return circulation from below. On curetting backward, toward the torcular, at first a well-organized clot was brought out, then a softened clot, and going back as far as I could, nearly to the torcular, I could not get a return circulation in this direction. It was deemed best not to interfere further, and after thoroughly cleansing out the wound, the patient was put to bed. On the next day the temperature did not rise above 100. The wound was irrigated daily. The second day after the operation the temperature was 99.8 in the morning and 99.6 in the evening. The third day the patient was eating, sleeping, and feeling better than at any period during the whole stage of his illness. On January 9 the temperature was 100 in the morning, 100.2 in the afternoon, and 99.8 at night. The bowels, which for the week previous had been very loose and attended with a good deal of mucus and bloody discharge, had now returned to the normal condition and had been so since the first day after the operation. On January 10 the temperature did not rise above the normal. This evening, for the first time since the operation, the patient complained of pain in the head again. This pain was more general than at any previous stage of his illness. On January 11 the patient's morning temperature was normal, the evening temperature 100.2. The patient felt, slept and ate well, and had large, well-formed movements. On January 12 the temperature was 100 throughout the day until evening, when it went up to 100.8. The patient appeared very restless and could not sleep; seemed to be growing anxious about his condition and extremely irritable. On January 13 he suffered a great deal of pain in the head; felt chilly; temperature throughout the day was 102.2. Irritability was very marked. The patient vomited a quantity of green fluid. January 14, temperature was 103.8. He suffered intense pain

n head; was extremely restless, irritable, and could ardly be kept quiet in his bed; complained of feeling adly and uncomfortable. Urine was passed involuntarily. There was no evidence of muscular paralysis r loss of sensation. Stimulants and food were refused. t was evident that the patient was developing or had eveloped a meningitis, and there seemed to be no apparent hope from further operative intervention. The ase went from bad to worse until January 18, when he ied. Vain efforts were made to obtain an autopsy, ut the family absolutely refused it.

Cerebral Abscess, Case No. 3.—On September 15, was consulted by a gentleman 63 years of age, who ad, during a visit to Atlantic City, while in bathing, eveloped an abscess of the right ear. This continued nder treatment until September 15, when he called pon me. At that time, on examination of the ear, I ound a small perforation of the membrana tympani t the posterior superior quadrant. His general conition was good and there was no tenderness or other vidences of involvement of the deeper structures of he auditory apparatus. I watched the case for several ays, treating it in the usual manner, and then, as the rainage did not seem good, I enlarged the opening in he membrana tympani. During this time, and until bout October 10, the case progressed favorably, with greatly diminishing amount of purulent discharge, ntil about October 15, when there was absolute cessaion of purulent discharge with closure of the opening n the membrana tympani. There was considerable mpairment of the hearing and the patient was kept nder observation and treatment in order, if possible, o bring the hearing up to normal. About the first week n November I noticed that the patient was a little more xcitable than at any previous period of the treatment f his case. On about November 12 I became so imressed with his nervous state and his tendency to beome excited and the alteration of his general manner hat I consulted his family in regard to these facts to lucidate if they had noticed any alterations in his eneral demeanor. They rather assured me that he as about the same as he always had been. This conmued for a period of about four or five days, when he family began to notice those things to which I had alled their attention. He became morose, with a tendency to have crying spells, getting excited on slight rovocation and unusually irritable to his wife and hildren. For about five days before this, that is, about November 7, the patient called my attention to an intense frontal headache, which had persisted now for bout a week or ten days without interruption, and seemngly situated over the supraorbital notch. At this time I thought it best to confine him to the house and to bed, nd on November 18 I first noticed that the patient howed some evidences of amnesic aphasia. I then told he family that I feared the patient was developing an ntracranial complication, and at my suggestion, Dr. A. B. Richardson, superintendent of the Government Insane Asylum, was called into consultation. With Dr. Richardson, I went carefully over the case, and he was ather disinclined to accept my views with regard to he possible existence of a cerebral abscess. The temperature had been normal throughout. There was no alteration in the circulation nor in the respiration. There was no motor paralysis nor alteration of sensation and he reflexors were all normal. Examination of eyeground was made by Dr. Shute, but on account of the existence of a cataract, it was impossible to learn anything from this investigation. On the 23d this aphasic condition had increased a great deal, his irritability had become more marked, and there was elevation of temperature for the first time, the temperature registering 99.5. The pulse showed a slowing, dropping five beats from the normal with this patient. Dr. Richardson was again called in consultation on the 25th. We then went carefully over the case again, and we noticed that besides the amnesic aphasia there was also commencing evidence of word-blindness. There was still no alteration in sensation or motion, the patient locomoting with perfect ease. Dr. Richardson then became of the same opinion with me, and located the abscess in Broca's triangle. The patient was taken to Providence Hospital, and on the following day at 2 o'clock he was operated on. The headache had subsided about four or five days before the operation. I first did the preliminary mastoid operation, opening up into the mastoid cells without finding any evidence of a diseased condition therein. I then exposed the skull in the usual manner and took out a button of bone about an inch and a quarter above the external auditory canal. On exposing the dura there was distinct bulging and absence of pulsation. I then felt tolerably certain that there was pus within the cranial cavity. I first went in with a large-sized aspirating needle in the region forward and inward, where we had expected to find the pus. I then went inward and then downward and inward, and then backward. This was followed by the use of a grooved director in the direction that had been previously used, without the detection of any pus. Dr. W. P. Carr, who assisted me, was then given free rein in the cerebral cavity. He also failed to locate pus. At Dr. Foster's suggestion, the wound was enlarged backward, so that a better opening could be obtained, so as to get into the occipital lobe of the brain. Probing back in this direction also failed to evacuate pus. We all felt that sufficient exploration had been made, although we were confident that there was pus within the cerebral contents. The patient's condition remained about the same for twenty-four hours; on the second day he relapsed into a semi-comatose condition, and died on the third day. On post-mortem, a small abscess about the size of a hickory-nut was discovered on the mesial side of the uncinate convolution of the temporosphenoidal lobe. It is almost impossible to conceive how this abscess was missed during the probing. Of course, many reasons can be surmised as probable causes. On examination of the brain, which I have brought with me, it can be seen that the opening was made in a direct line with the abscess, and only about an inch and a half from the outer wall of the capsule of the abscess. In all probability, during one of my manipulations, the instrument in use must have entered the abscess cavity, the pus being either too thick to flow, or the softening of the contents of the abscess not being sufficiently advanced to admit of its readily passing out through the opening made.

With regard to operative intervention in septic thrombosis of the sigmoid sinus, early diagnosis and prompt intervention is the keynote to a successful result. The operation in itself is not a dangerous one, and should not be attended with much more shock and disturbance of the general system than the ordinary mastoid operation. Unfortunately, in this condition in the formative stage of infection, we have no symptoms or groups of symptoms which would lead us to suspect that a septic phlebitis is about to take place. Usually the first positive symptom manifested is that showing that the general system is infected, as is evidenced by the pyemic

rigor and fever curve. Occasionally we may have slight fever curve preceding the pyemic chill for several days, but this does not point to any particular condition, only serving to put us in the expectant state. Here it is well to bear in mind the observation of Ernest Leutert in this connection, and that is that continuous fever lasting for several days after the subsidence of the acute symptoms in acute otitis suppurativa, wherein there is free exit to the purulent discharge, but more particularly in the chronic otitis suppurativa, without acute exacerbation of symptoms or retention of pus in the middle-ear cavity, is almost an exceptional symptom of a forming sinus thrombus. In the early stages of thrombosis the local symptoms do not indicate more than a possible mastoiditis, even if they indicate that, and if thrombosis is detected, it is only done during the mastoid operation. Gerhardt's symptom is one that may be of aid to us during this stage of the affection. What is particularly desired in connection with the symptomatology of infective sinus thrombosis is careful scrutinization of all mastoid cases with regard to their symptoms, in order that in those in which there follows thrombosis, or in which it is present at the time of operation, although undetected, we may by so doing pick out a group of symptoms which would render probable a diagnosis of infective thrombosis at this early stage of its formation. During the second stage, characterized by the formation of the thrombus and its commencing disintegration, the symptoms are usually so characteristic in most cases as not to escape the detection of the skilled aurist. While it is true that the aurist would invariably diagnosticate a thrombus at the first rigor and chart reading, it invariably is not so in the case of the general practitioner. We must recognize the fact that the general practitioner is, and has a right thereto, treating very many cases of chronic and acute suppurative otitis, but unfortunately he does not recognize the possibility of these cases as the aurist does, nor is he prepared to recognize the import of distinctive symptoms of grave intracranial lesions. We can not too often call to the attention of the general practitioner the fact that the occurrence of a chill, a high temperature and a sweat in a patient suffering with a suppurative ear is not an evidence of malaria, but is a symptom of extreme gravity, indicating an involvement of the sigmoid sinus, and which should be given immediate operative attention. In the present day no one practicing otology hesitates at operating at once upon an exposed diseased sinus, or in exposing and opening the sinus when the symptoms indicate that an infective thrombus is forming therein. The technique is recognized as comparatively simple, and all are universally a unit, excepting with regard to the treatment of the internal jugular. One can not but accede to the fact that the line of safety lies in the ligation of the jugular. Even though a return circulation be obtained, this does not prove conclusively that the walls of the jugular are not already involved in the phlebitic inflammation, and that thus below our seat of operation and apparent safety we may still have a source of general systemic infection. That cases recover without jugular ligation does not prove that many more might have been saved had jugular ligation been resorted to in all cases. The ligation and excision of the jugular does not add much to the gravity of the case, and may add greatly to its future welfare. Whether the ligation should be resorted to previous or subsequent to the exposure of the sigmoid sinus depends largely upon the condition manifested at the time of operation.

With regard to cerebral abscess, the diagnosis is not always an easy question, although at times, owing to its distinctive localization and non-involvement of other structures, the signs are clearly marked. Subdural abscess gives rise usually to no distinctive signs until the meninges are involved. The early and most characteristic symptoms of cerebral abscess are those of alteration of the general demeanor of the patient, the patient becoming anxious, irritable, morose, and semi-hysterical. I should look upon this symptom as an exceedingly suspicious sign in a person affected with a suppurative ear. Another symptom which I think can not be too often called to our minds is the evidence of aphasia, especially in cases of left-sided otitis in right-handed persons. As the usual seat of lesions in otitic cerebral abscess is in the temporosphenoidal lobe of the brain, and as we know that the localization of the speech center is not limited to one small area of the brain, we can readily understand how an abscess anywhere in the temporosphenoidal region is apt to involve some of these centers or some of the associate fibers, giving rise as its earliest manifestation, to some alteration in the function of speech. Unfortunately the speech center is not a simple affair, localized in a single center, but rather a complex thing, resulting from the action of many brain centers. It extends from the Rolandic region backward into the temporal region and upward as far as the angular gyrus in the occipital lobe. While we see that the presence of aphasic symptoms in a person suffering with suppurative otitis is quite a positive sign of cerebral abscess, yet it does not give us the positive seat of the lesion or its localization. The most probable seat of such an abscess is in the white matter of the under surface of the brain in the region of the uncinate or third convolution. The seat of such an abscess would be in a direct line inward, varying from an inch to an inch and a half in depth from an opening made in the skull cap one inch above the external auditory meatus.

SUPPURATIVE TYMPANO-MASTOIDITIS IN CHILDREN.*

HERMAN KNAPP, M.D.

NEW YORK CITY.

When you did me the honor to invite me to address this Section I thought tympano-mastoiditis in children might be an appropriate subject to open a discussion on that part of otology, which, at present, receives the greatest attention—the surgery of the tympano-mastoid.

Like others, I have found the affections of the tympano-mastoid particularly difficult to manage in children. Not only the difficulty of the subject, gentlemen, but also its paramount importance, determined me to submit some remarks for your consideration. As to the importance I need only repeat what has often been said, viz., that he who has no hereditary tendency to deafness and guards his hearing organ safe through all the diseases of childhood, is almost immune from ear trouble in after life. What causes the management of ear disease in childhood to be so difficult and irksome? This question leads one to the etiology of ear disease. In order to learn at what age cases of serious ear disease are most numerous I have tabulated the mastoid operations performed on children under 8 years at the New York Ophthalmic and Aural Institute, during the last six years. They are 39 in number. Of these 7 (18 per cent.) occurred in the first year, i. e., from birth

* Presented in a Symposium before the Section on Laryngology and Otology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5-8, 1900.

to the completion of the first year; 9 (23 per cent.) the second year; 3 (7.6 per cent.) in each of the third, fourth, and fifth years; 4 (10.2 per cent.) in the sixth year; 5 (12.8 per cent.) in the seventh year; and 5 (12.8 per cent.) in the eighth year. Of the children who had mastoid abscess in the first year, 2 were two months old; 1 four months; 2 seven months; 1 ten months, and 1 eleven months. This classification shows that the greatest percentage was in the second year; then came the first which gives the first two years of life 41 per cent., against 59 per cent. in the six subsequent years. As to the deductions suggested by these numbers, I dare say that they are not conclusive, because the material of a public clinic deals chiefly with patients that are more or less transportable. Children in the first year of their lives are not so movable as those that can walk. Yet, small as the above numbers are, they demonstrate a preponderance of this disease in the earliest childhood over following years.

The grave ear diseases, I mean those that show mastoid affections and their complications, are not only more frequent, but also more dangerous, and more difficult to treat in childhood than in adult life. What is the cause? I think we are all agreed that the cause lies in the anatomical conditions in the infantile ear and its adjacent parts, the nasopharynx. Lodged in the nasopharynx, the great originator of ear disease, is the belt of adenoid tissue in the upper part of the pharyngeal cavity which, among other parts, encroaches on the Eustachian tubes and even dips somewhat into their mouths. It would be carrying owls to Athens were I to say more about it before this Section. The peculiar conditions of the auditory organ are responsible for the easy transportation and pernicious development of infective material from the nasopharynx into the ear. The anatomy of the ear is difficult to master. It is not only most intricate in its finished state at the age of maturity, and later, but it is so undeveloped at birth, and grows so slowly that the ear surgeon should make a special study of the condition of the ear nearly every year in the first decade of his patient's life.

The shortness and comparatively large caliber of the Eustachian tube present favorable conditions for the ready admission of material from the nasopharynx into the tympanic cavity. This accounts for the frequency of tympanic disease in children, but also for the favorable condition of spontaneous liberation of serum, phlegm and pus from the middle ear back into the nasopharyngeal cavity and thence into the respiratory and digestive tracts. The easy inflation of children's tympanic cavities, even without the act of swallowing, is well known.

The particular importance of an early diagnosis and treatment of suppurative otitis media in children resulted from the anatomical conditions, viz., a resistant drumhead, easy transfer of infective material from the nasopharyngeal cavity into the tympanum, attic, and both outside and inside the skull. As there are not yet any mastoid cells, but pneumatic cancellous tissue in the base of the squama, we see the abscess rather above than back of the ear. In some cases, these abscesses, characteristic and well developed, disappear over night and the patient gets well quickly and permanently. Where have they gone? They have passed through the large infantile Eustachian tube into the throat. When we evacuate them, by operation, we must not plunge a knife boldly into them, down to the bone, as we may do in adults, but make the incision carefully, layer by layer, bearing in mind that the bones of young children are soft and connected with one another by membranous sutures, more or less broad, all of which can be clearly seen on the skull of a 6-months' old child. The easy path which, in another case, leads the pus into the middle cranial fossa, with its fatal consequences, is just as plainly demonstrable. The masto-squamous and petro-squamous sutures as ready channels of morbid material are now generally known and appreciated. The petro-squamous sinus of children which in some cases does not obliterate very early, exceptionally remains persistent, is seen on the inside of the skull, passing through a foramen which outside is situated behind the glenoid fossa and the tympanic ring. This sinus, well described and depicted in William Macewen's inexhaustible book —in Figs. 1 and 2, opposite page 2—has of late drawn the attention of the otological world through a case, published by Dr. Cleveland, of Philadelphia.[1] Mr. Arthur Cheattle, of London, has made "une étude approfondie" on this subject, exhibiting 6 or 7 skulls where the foramina were well seen, at the unique museum of the Sixth International Otological Congress, at London, last summer. He gave a good description of that sinus, acknowledging, as the speaker does, his gratitude to Dr. Cleveland for having given him his first knowledge on this not well-known subject.

SOME OBSERVATIONS IN MASTOID OPERATIONS.*

A. W. CALHOUN, M.D., LL.D.
ATLANTA, GA.

So much has been written upon this subject that it would seem that little remained to be said; yet the gravity of mastoid disease is such as to promptly arouse our attention and apprehension, and lead us in each instance to vigorous treatment, and therefore every observation should be of interest.

The disease, in certain seasons of the year, often prevails in almost epidemic form, and again occurs at such wide intervals as to attract notice by its infrequency, but I dare say no case ever presents itself to any one of us without causing us the deepest concern for the welfare of our patient. The anxious, distressful countenance of a typical mastoid subject at once elicits our earnest consideration and demands our most thoughtful care and treatment. The possible unfavorable result in each case brings before us vividly the fact that we have a grave disease to deal with, and that we must act promptly and decisively.

During the last year I have treated twelve or fourteen cases of mastoid disease, varying in age from 8 to 50 years, and the operations I propose to speak of were made while attending these and previous cases, running back through a series of years. I do not intend to recite details of each individual case with accompanying symptoms, but will say they were just such as we all see—some very severe, some less so—but all requiring operative measures more or less radical; most of them necessitating the removal of the outer wall of the mastoid bone and the thorough curetting of the cavity, and all fourteen making good and complete recoveries.

Reviewing these cases, and studying them and the disease as it occurs in my section of the country—Middle Atlantic States—has led me to the following conclusions:

In the first place, I would call attention to the infre-

* Presented in a Symposium before the Section on Laryngology and Otology, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5-8, 1900.

1. Archives of Otology, xxiv, p. 236, 1895.

quency of mastoid disease as compared with the total number of cases of acute and chronic middle-ear suppurations. It has occurred to me that we have more than our proportion of middle-ear suppurations, running their course and getting well, or going over into the chronic state and becoming often a fixture with the individual. But even with a large number of these latter cases the comparative rarity of mastoidal complications has been conspicuous and a matter of observation. On the contrary, in other sections of our country I learn from medical friends that the disease is very frequent, occurring much oftener in an equal number of chronic and acute middle-ear suppurative inflammations. This has been particularly the case during the past winter in many of the large eastern cities, where, as a sequel to la grippe, mastoidal complications have prevailed to an alarming degree. Doubtless, the mildness of the climate will furnish the explanation of the small number of cases, as compared with their frequency in other sections having a harsher climate. The observation to which I would like to call your attention is that while mastoiditis is more frequent in some sections than others, it is yet an uncommon complication everywhere when the vast number of the acute and chronic suppurations of the middle ear are taken into consideration. One would naturally expect to find a large percentage of such cases, after viewing the intimate relationship of the tympanic and mastoidal cavities, remembering the violence of the inflammation in the former cavity.

The mild type of the mastoid inflammation in the cases treated during the recent winter also deserves attention. In each the usual symptoms were present, viz., fever in most cases, but absent in some; the characteristic swelling, not always great; pain, and the ever-present distressed countenance, etc. Owing, doubtless, to climatic influence, there has been marked freedom from cerebral and other dangerous complications. This has not been the history of the disease, as recently occurring in more northerly sections. In a great majority of the cases the damage to the hearing has been slight, the patient regaining much if not all the hearing lost as the result of the mastoid complication. This is a matter of surprise when one recalls to mind the changes and disturbances which take place from the inflammation and the operative procedures within the mastoid cavity.

Age has played no rôle in the series of cases more recently in my hands, the disease occurring about equally often in children and adults. I know no reason why the negro should be exempt from this affection, but I recall but one case of mastoid inflammation in the negro. I have had abundant opportunity to study the many diseases of the black race, and after a large experience can state that the negro is much less susceptible to middle-ear diseases than the white race; and being thus less susceptible it follows that mastoidal complications should be very rare with him.

I have observed sometimes very serious mastoid disease without any such marked symptoms as swelling, pain, etc., and but little abnormal temperature. Recurrent slight acute attacks would finally lead to the decision that operative measures were needful, and the operation would develop the fact that very serious inflammation existed in the cavity. In a case recently operated, I found the inflammation and the destructive processes in the cavity out of all proportion to the external and constitutional symptoms. Cases also now and then present themselves where the mastoid inflammation exists apparently without middle-ear involvement. There must have been an acute otitis media with an extension of the inflammation into the mastoid cells, but no suppuration of the middle ear had taken place. Such a case was operated upon, in which the patient had never complained of pain, impaired hearing, suppuration or other middle-ear symptoms, yet evidences of mastoid inflammation were so pronounced that a radical operation was deemed necessary. It is an error to suppose that every case of mastoiditis is preceded by suppurative otitis media, as experience teaches us the contrary.

Again, there can be no doubt of the tendency to spontaneous and complete recovery in many cases of the disease of even severe types, for in some of these reported an operation was refused and yet a perfect cure was attained. A good result is not infrequently reached only by resorting to the Wilde incision. Such recoveries occur often enough to cause one to pause and consider whether the severe and radical operation for mastoid disease is not frequently made when a little delay might have led us to much simpler and just as satisfactory treatment. I would not like to be considered as advocating anything but prompt and thorough surgical treatment in well-marked typical acute or subacute mastoiditis, but there are cases where intelligent delay and milder measures yield just as good results as are invariably produced in the more violent cases by the most radical surgical treatment. The fact I wish to lay stress upon here is that not in every seemingly severe case of mastoid disease is it necessary to rush to radical operative treatment, but that not an inconsiderable number make good recoveries under milder measures. One of the chief advantages of the surgical treatment is the rapid and complete cessation of the middle-ear inflammation, discharges, etc., in a large majority of cases.

My experience has led me to the conclusion that such radical measures as the Stacke operation are seldom required, the disease yielding readily and satisfactorily to the less severe operative procedures; indeed, my records do not show in a single instance that it was needful to resort to the severer operations.

To recapitulate, my conclusions, based upon a large number of mastoid operations, are:

1. Infrequency of mastoid disease as compared with the large number of cases of suppurative otitis media.
2. Mild type of the disease, freedom from cerebral and other dangerous complications.
3. Comparative exemption of the negro race.
4. Presence of serious mastoid disease without marked outward symptoms, fever, etc.
5. Presence of mastoid disease without apparent middle-ear involvement.
6. Not every case requires radical operation.

[The discussion will appear with other papers of the Symposium, to be printed in succeeding issues of THE JOURNAL.—ED.]

MALARIA AND MOSQUITOES.—Dr. Dionisi, of Rome, has involuntarily contributed another example of the infallibility of the transmission of malarial infection by mosquitoes. A number of which he was cultivating for purposes of research escaped from their cage and stung him. After a few days of incubation he was prostrated with a violent attack of typical estivo-autumnal fever in the middle of January.

DIFFERENTIAL DIAGNOSIS BETWEEN CHICKENPOX AND SMALLPOX.

HEMAN SPALDING, M.D.

Chief Medical Inspector, Chicago Health Department.

CHICAGO.

In conversation with an eminent dermatologist recently, he made the remark that he had never seen chickenpox in an adult. I thought it a remarkable statement in so experienced a man, inasmuch as I had seen a large number of such cases while connected with the Department of Health of Chicago. I subsequently noticed a statement published in the *Cleveland Journal of Medicine*, by Dr. William Thomas Corlett, to the effect that he had never seen a case of chickenpox in an individual after puberty. A little later THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION editorially said that chickenpox in an adult was so rare an occurrence that "it might be a safe rule in some respects to call every case in an adult smallpox that one feels tempted to diagnose as varicella."

An adult with a supposed case of chickenpox either has or has not chickenpox. If he has it, he should not be treated for something else. Chickenpox, like other eruptive diseases, as measles or smallpox, delights to visit its wrath upon children, but if by some chance a child escapes chickenpox, as often happens, there is no known physiological law that will with certainty protect this child when grown to manhood, from contracting chickenpox if exposed to that disease.

Fig. 1.—Varicella. Aged 22 years. Fifth day of the eruption. Macules, papules, vesicles, pustules and scabs from broken and dried vesicles.

I will present a case with some notes on the diagnosis. The accompanying illustrations, Figs. 1 and 2, are from photographs of a case of chickenpox in a man 22 years old. The photographs were taken on the fifth day of the disease, which was also the fifth day of the eruption. Dr. W. S. Orth, of this city, was called to see the man and pronounced the disease chickenpox. Dr. L. E. Smith saw the case with Dr. Orth, and agreed with him as to the diagnosis. I was then requested to see the patient and concurred in the opinion that it was chickenpox. Dr. John R. Neely, of the Department of Health, saw the case later and also pronounced it varicella. The following is the history:

Wm. S., 22 years old, was vaccinated with a typical result seven years previous. There were no prodromal symptoms experienced, no chill, no headache, backache, nausea nor fever. The eruption came on rapidly, but irregularly, first on the body, then the face, hands and limbs. It appeared as described, as "small blisters."

I saw him on the fourth day of the eruption and found large vesicles, large pustules, some papules and scabs from broken vesicles. This was at the height of the disease. I was unable to procure a photograph that day, but the following day Dr. Drake of the Department photographed the man. The lesions show well in the photograph, but had dried down some and are not so well marked as they were the day before. The man felt well and but for the appearance of his face would have preferred to continue about his work. Eight days after this photograph was taken he was again "tending bar."

As to the diagnosis, there was a history of exposure to a case of chickenpox in a child. In the same room with the patient was his 11-year old sister with a typical case of chickenpox represented in Fig. 3. There were no prodromal symptoms. Eruptions were vesicular and rapidly became large vesicles, quickly turning to pustules or breaking and forming dried scabs. None were deeply seated except those showing secondary infection. The vesicles and pustules were thinly covered and easily broken, and many of them were broken. The pustules on the fourth day were as mature and as large as they would be in variola on the ninth or tenth day of the eruption. There was no uniformity of development—macules, papules, vesicles, pustules, and dried scabs were abundant on the fourth day. This variety of lesions in so marked a degree could not be found in smallpox. In smallpox a man would have some prodromal symptoms with so profuse an eruption.

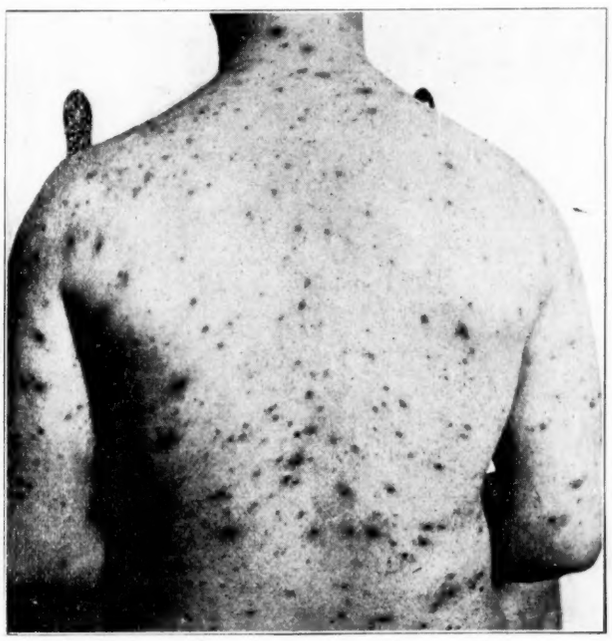


Fig. 2.—Varicella. Aged 22 years. Fifth day of the eruption. Macules, papules, vesicles, pustules and scabs from broken vesicles.

There were visitors and several unvaccinated children at this house. An unvaccinated child, sister of the patient, came home while the patient was scaling. Nothing was done to destroy contagion. The man went

to his work behind the bar at a time when, if it had been smallpox, he would have conveyed the disease to others; yet no one took the disease, except one child, and she had chickenpox.

I have seen many examples of perfectly typical chickenpox in adults. The early part of 1899 Prof. Henry M. Lyman reported a case of chickenpox in a man 22 years old. I had an opportunity to see the case with Dr. Lyman. It was typical in every way, except the presence of headache for two days preceding the eruption.

It has frequently happened during mild epidemics of variola, such as is now prevalent over various parts of the country, that a mistaken diagnosis of varicella has been made, and disastrous results have followed, and I do not want to encourage any one in the belief that varicella is always easily distinguished from mild variola, but a correct diagnosis ought always to be made, for it is a serious matter to send a non-variolous patient to the smallpox hospital.

There are cases of variola and varicella with clinical symptoms of both diseases present which will puzzle the most experienced diagnostician. It must not be lost sight of that varicella does quite frequently attack adults.

Fig. 3.—Varicella. Aged 11 years. Second day of the eruption. On right elbow three lesions caused by scratching owing to presence of urticaria.

In contrast to the above case, observe the character of the eruption in the case of smallpox represented in Figs. 4 and 5. This shows smallpox at the sixth day of the eruption and ninth day of the disease. There is a marked difference in the appearance of the lesions. In Figs. 4 and 5 there is no sign of the vesicles breaking down and drying into scabs, though the lesions are a day older than those in the case of chickenpox, represented in Figs. 1 and 2.

The vesicles now turning pustular are covered with the entire skin, making a protection to the vesicle so strong that it is not easily broken. These lesions are still growing in size and will continue to enlarge for four days more. The lesions in Figs. 1 and 2, five days old, are smaller than they were the day before the photographs were taken, and each day will see a diminution in the size of the lesions, except in the exceptional ones which have received extraneous infection.

The occasional occurrence of chickenpox in adults has been a source of confusion to medical men who are not in constant touch with variola and varicella and have not become perfectly familiar with the clinical aspect of the two diseases in all their forms.

A diagnosis is easily made in a typical case of either of these diseases, but in the mild form of smallpox now prevalent throughout the country, a perfectly typical case is not often seen.

These irregular forms of variola present numerous deceptive aspects. In a large proportion of the cases the eruption will appear after two days of prodromal symptoms instead of on the evening of the third or the morning of the fourth day, as is usual. In some instances there will be violent prodromal symptoms; chill, high fever, headache, backache and vomiting, followed by so insignificantly few eruptions as to be disappointing and misleading to a physician who is inexperienced in the diagnosis of smallpox.

Fig. 4.—Variola. Sixth day of eruption.

More often the prodromal symptoms are insignificant as well as the eruption. There may be an absence of headache, or slight headache with no backache. Nausea has been very frequently present in these mild forms of the disease. These symptoms are often so mild as not to stop the subject from his work. He always feels better as soon as the eruption appears, no matter if the disease is so mild that only one or two papules appear, and if he has stopped work for a couple of days because of feeling a little sick, he will go to his work in most instances when this eruption occurs, if he is not stopped. I have found men with this form of smallpox, in the pustular stage of the disease, working in printing houses, packing houses, and factories. They felt no inconvenience and were not aware of the nature and danger of the disease with which they were afflicted.

In the mild form irregularity in development is frequently found. The vesicles fail to fill completely, will become pustular as early as the fourth or fifth day of the eruption, their contents are found to be hardened

become dry and horny and scale off before the tenth day. Some scale earlier than this. In the mild form modified by an old vaccination we frequently find a condition which is generally recognized to be a characteristic of chickenpox, but not present in smallpox, viz., as many as three stages of development of the lesions side by side. A few papules, numerous vesicles and some pustules and even scabs are found at the same time. The scabs would be the result of tearing the vesicles by scratching. These cases run their course and the lesions dry up and scale off in less than ten days.

In a few of these cases the pustules seem to involve the deeper layer of the skin so slightly that some have thought the cutis vera is not a part of the covering of the pustule. I believe the smallpox pustule always involves the cutis vera. I think this fact is the most valuable distinguishing feature about the smallpox lesion for diagnostic purposes.

The papule seems to be pushed up from below the skin, bringing in front of it as a covering, all the layers of the integument. Hence the tenacity of the covering

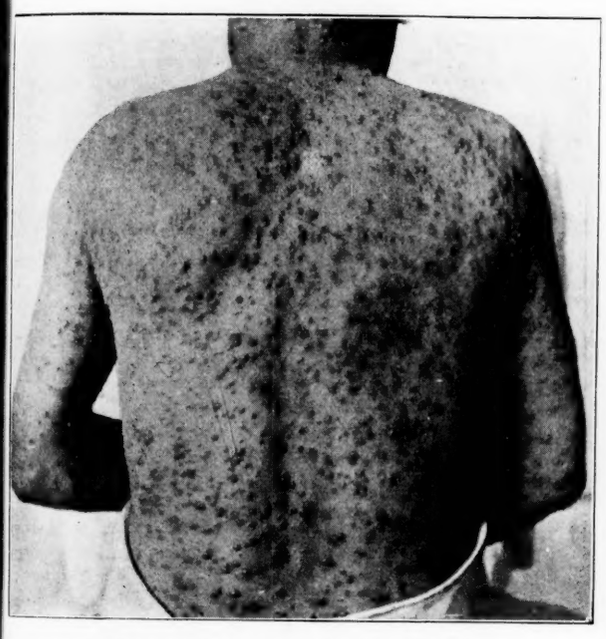


Fig. 5.—Variola. Sixth day of eruption.

of the smallpox vesicle or pustule. It is not easily broken and as a rule is not ruptured till the eleventh day of its growth.

Observe in Fig. 6 the deep-rooted pustules, ten days old, with thick investment, thick and strong enough to resist decay and external violence for ten days. The pustules of chickenpox, no matter how robust, will not resist decay and accidental pressure more than four or five days. Chickenpox lesions have for a covering only the outer layer of the skin. This covering is fragile, easily broken and *is* broken the first, second, third or fourth day after the appearance of the vesicle.

In the adult negro chickenpox lesions on the wrists and hands have such a thick covering that they resist destructive influences for fully five days, and if there were no typical varicella lesions over the body the diagnosis would be extremely difficult. The external layer of skin in an adult negro is thick and the eruption of varicella here looks and feels like the papule of variola, but the eruption over the body will aid in determining the nature of the disease.

It must not be forgotten that sometimes there are slight prodromal symptoms in varicella, and that in cases of mild smallpox sometimes the prodromal symptoms are very slight, so that we are compelled to make the diagnosis on the character of the eruption as presented to the eye. The diagnosis can be made, for there is a difference in the appearance to the eye, in the clinical course and development of the lesion.

In Chicago we have had an excellent opportunity to see and study mild smallpox as it has come to us during the past eighteen months from sixteen different states under the various names of "giant chickenpox." "Cuban itch," etc. Dixon, Ill., contributed six cases of smallpox to Chicago, though the disease in that city was generally known by another name. We placed all these case in the Isolation Hospital, where they ran a typical course of mild smallpox in every fact and detail. I visited three of the neighboring states where this mild type of smallpox was under discussion and found that in every instance the disease was smallpox.

While as a rule the attack is mild in this outbreak, it is not always so. We have had the confluent and the

Fig. 6.—Variola. Tenth day of eruption.

hemorrhagic form of the disease in our hospital.

A patient from Minnesota, with a mild case, diagnosed by two physicians as chickenpox, was permitted to mingle with others and visit her home in Chicago. Two of her sisters, a brother and her father, none of whom had been vaccinated, contracted the disease from her. The father and two sisters had a very mild form of the disease, but the brother had the disease in the confluent form, which resulted in his death in about two weeks. Here we had four people taken sick at the same time after an exposure to a supposed case of chickenpox, three of them having the disease in as mild a form as the sister who was supposed to have chickenpox, while the fourth had the disease in one of its worst forms.

In making a diagnosis of variola, remember that there will be some prodromal symptoms in the mildest cases if you are successful in getting the truth out of the patient, that when the eruption appears the patient will always feel better unless there is present some intercurrent disease, and that the fever will subside as the eruption

appears. Look for the early appearance of the eruption on the vascular parts, on the face, in the throat, on the wrists and hands, on the foreskin and glans penis. If you find a papule on the ear, it will help in the diagnosis. Do not depend too much on finding umbilication of the vesicles. You will be disappointed in the mild cases, as it is often absent.

Of all the cases of smallpox sent to the Isolation Hospital in the last eighteen months, but sixteen had ever been vaccinated and these had either doubtful or very old scars.

MISSTATEMENTS ON ANTIVIVISECTION.

CORRESPONDENCE WITH AMERICAN HUMANE ASSOCIATION.

W. W. KEEN, M.D., LL.D., F.R.C.S. (HON.)

Late President of the American Medical Association; Professor of Surgery, Jefferson Medical College.

PHILADELPHIA.

*Letter from President of American Humane Association.**

TOLEDO, OHIO, Oct. 4, 1900.

PROF. WILLIAM W. KEEN, late President of the AMERICAN MEDICAL ASSOCIATION, Jefferson Medical College, Philadelphia.

Dear Sir:—My attention has just been called to a passage in the published "Report of the Hearings" before the Senate committee, held at Washington last February, on the bill for regulation of vivisection. In this volume the following conversation between Senator Gallinger and yourself is recorded:

SENATOR GALLINGER—What knowledge have you of the advances made by vivisectionists that have led them to progress from the brute creation to the human creation in making these so-called vivisection experiments?

DR. KEEN—I presume that you refer to a pamphlet issued by the American Humane Society. I have only to say in reference to it that there were a number of experiments which I would utterly condemn. Of the experiments narrated in that pamphlet, I have looked up every one that I could. Only two are alleged to have been done in America. Many of them are so vague and indefinite that I could not look them up, but as to those that I could, some are garbled and inaccurate; not all of them, observe.

SENATOR GALLINGER—Some of them?

DR. KEEN—Some of them.

A statement of this character, based upon such authority, it is impossible to ignore. Proceeding from one less eminent than yourself in that profession which you represent and adorn it might pass without notice, but coming from you, sir, such a charge must be investigated and probed to the fullest extent. Its importance is evident, and in testing its accuracy you will give me, I trust every assistance within your power.

First: Regarding the cases of experimentation upon human beings recorded in our pamphlet, "Human Vivisection," you informed the Senate committee that "*Many of them are so vague and indefinite that I could not look them up.*" We challenge the accuracy of that statement, and ask for proof. Of the various series of experiments upon human beings, made for the most part upon women and children in hospitals and infirmaries, the authorities given in this pamphlet are as follows:

1. Bulletin of the Johns Hopkins Hospital, July, 1897.
2. Boston Med. and Surg. Jour., Aug. 6, and 13, 1896; Phila. Polyclinic, Sept. 5, 1896.
3. N. Y. Med. Record, Sept. 10, 1892.
4. British Med. Jour., July 3, 1897; New England Med. Mo., March, 1898.
5. Medical Press, Dec. 5, 1888; British Med. Jour., Aug. 29, 1891; London Times, June 27, 1891; and other journals.
6. Medical Brief, June, 1899.
7. Ringer's Therapeutics, pp. 585, 588, 590, 591, 498, 503; The Lancet, London, Nov. 3, 1893.
8. Newcastle Daily Chronicle, Sept. 21, 1888.
9. Med. Press and Cir., March 29, 1899; The Lancet, London, May 6, 1899, p. 1261.
10. Allg. Wiener med. Zeitung, Nos. 50 and 51.
11. Deutsche med. Woch., Nos. 46-48, 1894.
12. Ibid., Feb. 19, 1891.
13. Lecture before Medical Society of Stockholm, Sweden, May 12, 1891.
14. British Med. Jour., Oct. 15, 1881; Medical Reprints for May 16, 1893; Nineteenth Century, December, 1895.

For one series of experiments in the above list, those made by Dr. Jansen upon children of the "Foundlings' Home"—with the "kind permission" of the head physician, Professor Medin—because, as he said, "calves were so expensive," it appears that the only authority given was a reference to his lecture delivered before a Swedish medical society upon a certain date. Although, so far as known, the facts there stated have never been denied, yet the reference may, perhaps, be called indefinite. But *one* case is not "many." To what other of the references above given did you refer when you informed the Senate committee that "*Many of them are so vague and indefinite that I could not look them up?*" Had you stated that your library—ample as it is—did not contain, and could not be expected to contain, all of the foreign authorities to which reference was made there would have been nothing to criticize. I must assume, sir, that you have not put forth an aspersion of another's reliability merely to have acknowledgement of the inadequacy of your sources of reference; that the proofs of your statement, covering "*many*" cases, are available, and, in the interest of accuracy, I ask you to produce them.

Second: There is yet another point to which I ask your attention. You made the statement before the Senate committee that in regard to our published account of cases of human vivisection, "*many of them are so vague and indefinite that I could not look them up; but, as to those that I could, some are garbled and inaccurate; not all of them, observe.*"

This, sir, is a most serious charge. You distinctly declared that of the cases personally investigated by yourself, as quoted in the pamphlet on "Human Vivisection," some are "garbled and inaccurate." We deny the charge, and again challenge production of evidence upon which it is made.

A "garbled" quotation is one which, by reason of omission and perversions, is essentially unfair. Sometimes it is a statement from which parts are omitted or transposed for the purpose of conveying a false impression. To omit quotation of parts not directly bearing upon the question for the sake of brevity—this is not "garbling," for all quotations would then be impossible. We assert that in quoting accounts of the cases of human vivisection no omissions of essential facts have been made sufficient to impair the accuracy or fairness of the quotation. Let us put the matter to the test. Point out, if you can, the "some cases" which you found "garbled and inaccurate," and in proof of the charge *quote the omitted sentences or words which, had they been inserted, would cause you and the general public to justify and approve the experiments on human beings which we have so severely condemned.*

Third: You stated, sir, before the Senate committee that only two experiments upon human beings "are alleged to have been done in America." I question, sir, whether that remark is quite in accord with the highest ideals of truth; it is the language of doubt; it seems to signify and imply that even you are aware of no other experiments upon human beings than two cases which are thus "alleged." I am very confident, sir, that you will not venture formally to assert—what you have seemed to imply—that you know of but two experiments upon human beings made in this country and recorded in the medical literature of the United States. There is indeed need of further enlightenment, if the medical profession of this country, so worthily represented by yourself, is ignorant of what has been done by men without pity and without conscience.

Trusting to have response from you at an early date, I am,

Yours most truly, JAMES M. BROWN, President.

DR. KEEN'S REPLY.

1729 Chestnut Street,

PHILADELPHIA, PA., Jan. 21, 1901.

JAMES M. BROWN, ESQ., President American Humane Association, Toledo, Ohio.

Dear Sir:—Your letter of October 4 reached me promptly, but as I then notified you would be the case, very pressing engagements, absence, etc., prevented an earlier reply. Now that I have a little leisure, I can answer your letter and furnish you in detail the proofs for which you ask.

There are two pamphlets, both entitled "Human Vivisection." First, one of thirty pages, "printed for the American Humane Association, 1899;" the other of seven pages, "published by the Humane Society, Washington, D. C.," without date, but from its contents published a little later, as it is chiefly a synopsis of the same instances reported more fully in the

* Printed by permission.

larger pamphlet. Hereafter when I speak of "the pamphlet" I mean the larger one, unless I specifically mention the smaller one.

This larger pamphlet consists of two parts: first, (pp. 3-12) a reprint of a portion of "Senate Document No. 78" and the rest of it of various quotations, translations and comments. No name is attached to either part to indicate who is responsible for the accuracy of the references, the translations or the quotations. As the whole is preceded by an open letter signed by the president and secretary of the American Humane Association, and as you refer to the pamphlet as "ours," I presume the association holds itself responsible for such accuracy, especially as you as its new president challenge me for proof.

The pamphlet purports to furnish a reprint of a portion of "Senate Document No. 78," and refers to this document in a way that would lead uninformed readers to suppose that this is a document expressing the sentiments of the United States Senate. It is, therefore, important to call your attention to the fact that Senate Document No. 78 is simply a collection of statements and papers by various persons, printed by order of the Senate, but in no sense expressing the opinions or convictions of that body. The last paper in this document is one on "Human Vivisection," by "A. Tracy."

In two respects "A. Tracy" has a right to complain that the reprint is inaccurate: First, it omits to print the name of the author "A. Tracy." Surely he—or she(?)—should receive whatever credit there is attaching to his work. Secondly, on page 30, line 8, of Senate Document No. 78, I read "A. Tracy's comment. ["This patient, therefore, was scientifically murdered."] This statement the reprint very wisely omits—but there are no indications of the omission. Of this, more hereafter.

Your letter challenges the accuracy of my statements in three particulars: 1. I stated that many of the references in the pamphlet are "vague and indefinite." 2. I said that some of the accounts of the experiments are "garbled and inaccurate." 3. I stated that of the experiments narrated in the pamphlet only two were alleged to have been performed in America.

You will pardon me if I indignantly resent your imputation of untruthfulness in regard to this last statement. You entirely misinterpret my statement, which had no reference to my knowledge or ignorance of any other American experiments. I said that the pamphlet only contained two instances of such experiments which were alleged to have been done in America. These are recorded on pages 4 and 5 of the pamphlet. All the rest were done in Europe, South America, and Hawaii, years before it came into our possession. If you still question the accuracy of my statement and believe that there is a third instance of experiments done in America and described in the pamphlet, point it out by page and paragraph.

Turning to the other two really important matters referred to in your letter, let me again state clearly the question at issue. It is not whether the experiments meet with my approval, but solely whether the reports of them in the pamphlet issued by the American Humane Association are reliable and accurate both as to their sources and substance.

I. MANY OF THE REFERENCES ARE VAGUE AND INDEFINITE.

The references are so vague and indefinite in many cases that the statements and quotations made can not be verified by consulting the originals. The preface of your president and secretary states that "in *each case* the authority is given," and what sort of "authority" do you depend upon? Newspaper medicine and surgery are notoriously inaccurate. I have personally had so much experience and observation of this that I am always certain that at least one-half or more of the statements in newspapers in reference to medical matters are inaccurate, not purposely, but only because the writers are not medical men. Yet you depend for the accuracy of your statements upon newspapers as follows (I follow the inaccurate spelling of foreign names in your pamphlet):

1. The Vienna correspondent of the London Morning Leader, Jan. 26, 1899 (p. 3), of whom more hereafter.
2. The Deutsche Volksblatt, Jan. 25, 1899, (p. 3.)
3. The Washington correspondent of the Boston Transcript Sept. 24, 1897 (p. 9), of whom more hereafter.
4. The N. Y. Independent, Dec. 12, 1895 (p. 11).
5. The London Times, June 27, 1891 (p. 16).
6. The Tagliche Rundschau of Berlin (p. 17); no year, month or day being given.
7. The Vossische Zeitung of Berlin, no year, month or day being given (p. 18).
8. The Vorwartz, no year, month or day being given (p. 18).
9. The Danziger Zeitung, July 23, 1891 (p. 18).
10. The Schlesische Volkszeitung, July 24, 1891 (p. 18).
11. The Hamburger Nachrichten, July, 1891, no day stated (p. 19).
12. A correspondent of the Newcastle (England?) daily Chronicle, Sept. 21, 1888 (p. 22).
13. Dr. R. E. Dudgeon, in the Abolitionist, April 15, 1899 (p. 24).
14. A letter by Dr. Edward Berdoe to the London Chronicle, without year, month, or day (p. 29).

Few of these fourteen newspaper references can be consulted in this country; five of them (Nos. 6, 7, 8, 11, and 14) are impossible of consultation for want of any date whatever.

In no case would I be willing to admit a newspaper paragraph, a non-professional and usually unsigned statement—even if correctly quoted—as a sufficient authority for a grave charge against an individual or the profession.

Look for a moment what stuff Senator Gallinger stated at the "Hearing" he had himself caused to be printed. It is published on page 31 of the "Hearing" and on page 3 of the pamphlet. It consists of cable dispatches printed in some newspaper—Senator Gallinger did not even remember its name. The author of the dispatch from London is utterly unknown. The dispatch states that "the Vienna correspondent of the [London] *Morning Leader* says" so and so. Who and how reliable is the Vienna correspondent? He says that "the physicians in the free hospitals of Vienna" do so and so. Who are the physicians? In what hospitals were these deeds of darkness done?

And upon such evidence it is seriously proposed to indict the medical profession! Whether these dispatches are "garbled and inaccurate" in their alleged facts who can find out?

If a lawyer tried to convict a man of petty larceny on such testimony, he would be laughed out of court. An yet a senator of the United States and the American Humane Association actually adduce such statements as evidences of the gravest charges and spread them broadcast!

I now add six other "vague and indefinite" references not to newspapers.

15. On page 13 there is a quotation from Tertullian. The reference in the foot-note is "Tertullian, De Anima, Vol. ii. pp. 430, 433, Tran., by Holmes." I have compared the quotation with Clark's Edinburgh edition of the Translation of Tertullian by Holmes, the date of the edition being 1870. No such quotation exists on pages 430-433. Possibly it may be that the quotation is from another edition. No edition is named in the pamphlet; another instance of a "vague and indefinite" reference.

16. On page 17 a formal accusation is quoted as made by a Dr. Eugen Leidig against certain surgeons. *No reference whatever to any book or journal is given* by which the accuracy of the quotation can be tested. Is not this again "vague and indefinite?"

17. On page 24 is a reference to a paper by "Professor E. Finger, of Vienna (*Allg. Weiner Med. Zeitung*, Nos. 50 and 51." No year is given, a somewhat essential part of the reference, as there are over forty volumes of this journal, each with the weekly numbers 50 and 51. No such paper by Finger is published in that journal, at least from 1890 to the present time. The reference is quoted from a paper by Dr. R. E. Dudgeon in the *Abolitionist*—an English journal—of April 15, 1899. I have been unable to consult this journal. If Dudgeon gave the year, then the Humane Association pamphlet has misquoted him. If he did not, then both the Association's pamphlet and he have been "vague and indefinite."

18. On page 25 again is a reference to a statement in a "lecture before the Medical Society of Stockholm," by Dr. Jansen, of the Charity Hospital, reporting certain experiments. No reference whatever is given even to a newspaper, much less to any medical journal. As the statement is in quotation marks it purports to be the exact words used and ought to have had *some* source to which a reference was possible, especially as the preface of the pamphlet says: "In each

case the authority is given." I am glad to see that in your letter you recognize this as one in which the reference is really inadequate. I notice, however, that even in your letter you do not supply this missing reference. You say the facts asserted in the Jansen paragraph have never been denied. Of course not. The first requisite is to know whether they are correctly quoted.

Turning now from the larger pamphlet to the smaller one, which was spread broadcast by house to house distribution in Washington at the time when the hearing on this matter took place last winter, I find repeated in this a number of the same vague and indefinite references and garbled and inaccurate quotations already or to be described, to which are to be added the following:

19. On page 3, an extract from a report referring to experiments upon insane patients is printed in quotation marks. The only reference is to a "published report" in 1890 of the "Medical Staff of the Public Insane Asylum in Voralberg, Austria." The librarian of the Surgeon General's office informs me that there are two small insane asylums in the Voralberg, namely, at Hall and Valduna. Some reports of the former are in the library and in them no account of the experiments referred to can be found. No reply has been received to a letter addressed to this asylum as named in the pamphlet and written over a year ago.[1]

20. On the same page is an account of some experiments on bacteria from boils, and the reference is to the "*Deutsches Volksblatt*;" no day, no month, no number, no page, nor even the year is given. If this is not "vague and indefinite," what is?

21. On page 24 there is an account of Kroenig's experiments, to which I shall recur later. No reference whatever is given to the source from which the account is taken.

2. SOME OF THE STATEMENTS ARE GARBLED AND INACCURATE.

To be vague and indefinite in charges affecting the morals and the reputation not only of individuals, but, in fact, of a whole profession is bad enough, but to make statements that are "garbled and inaccurate" is, as your letter recognizes, a much more serious matter. Let me consider the instances in detail.

1. "Vivisection Experiments Upon the Insane," pages 4 and 5: In the following quotation, the words of the original, which I enclose in brackets, are omitted. "To these patients the thyroid tablets [each pill representing five grains of the fresh sheep's gland] were administered," etc. This omission is of moment, because any one familiar with the administration of thyroid extract knows that the doses used by Dr. Berkley are frequently given to human patients, including the insane, without producing symptoms dangerous to life, but on the contrary with benefit. I have myself given such tablets to patients with goiter for weeks together in larger doses than Dr. Berkley used.

In the following paragraph the quotation is garbled by omitting the words which I enclose in brackets: "Two patients became frenzied and of these one died before the excitement had subsided [the immediate cause of the exitus being an acute disseminated tuberculosis]." And again in the next paragraph giving a report of the same case, the pamphlet quotes: "The thyroid extract was now discontinued, but the excitement kept up . . . for seven weeks, at the end of which time she died." One would think this was the end of the sentence and that she died from the effects of the thyroid tablets. Not at all. The original continues as follows: She died "with the clinical evidences of acute miliary tuberculosis"—galloping consumption. Does this not come within the definition of garbling given in your letter? "A 'garbled' quotation is one which, by reason of omission and perversions, is essentially unfair." To say that this patient, who actually died of galloping consumption, died from the effects of the thyroid extract, which had not been given for seven weeks before death, is as absurd as it would be to say she had died from the effects of moderate doses of laudanum given seven weeks before. Yet "A. Tracy's" comment on this case is: "[This patient was, therefore, scientifically murdered]." Your Association mutilates its reprints by wisely omitting this piece of absurdity, though the omission is not indicated. Moreover, the pamphlet states: "there is no intimation that the administration of the poisonous substance was given for any beneficial purpose to the patients, for he took care to select patients that were probably incurable." On the contrary, Berkley's original paper expressly states that instead of being incurable, one (Case 1) was cured and another (No. 3) was improved. Besides this, though the pamphlet is dated 1899, it omits all reference to Dr. Berkley's letter to the *British Medical Journal* for October 30, 1897, in reply to your friend Dr. Berdoe, which shows that, as a result of the administration of the thyroid tablets to these eight patients—a well recognized remedy for insanity,[2] not one died from the effects of the drug but that, on the contrary, two of those alleged "incurables" were cured—25 per cent.

In his admirable letter to *Life*—Dec. 6, 1900—Dr. Berkley says: "The purpose for which the article was written was to show to the medical profession that *a certain medicament in common use* was not free from objection, and should not be given in unsuitable cases. In proper ones the results are among the most resplendent attained by modern medicine, converting the drooling dwarf into an intelligent, well-grown man or woman; or in other instances, as in myxedematous insanity, affording the otherwise hopelessly insane with almost a specific to recover their reason." [See the addendum at the end of this letter.]

2. The Cases of Lumbar Puncture by Dr. Wentworth, of Boston, (p. 5): "Lumbar puncture," I may remind you, is the simple insertion of a hypodermic needle between the vertebrae into the sheath of the spinal cord, but below the cord itself, to obtain a few drops of the cerebro-spinal fluid for diagnosis.

The pamphlet gives what is called a "brief abstract" of five of the experiments related. The abstracts are indeed brief, so brief as to give a wholly erroneous impression as to the causes of the patients' death. The omissions are glaring instances of what the logicians call a *suppressio veri* equivalent to a *suggestio falsi*. Let me point this out in detail.

Case 2. It is correctly quoted that the last puncture (where there were several punctures I only give the last date) was made "Feb. 16, on the day of patient's death." The pamphlet fails to add, however, the important fact stated by Dr. Wentworth that the postmortem showed an empyema [abscess in the chest] which had burst into the lung, pneumonia, and inflammation of the brain with pus as the cause of death.

Case 3. The pamphlet correctly says "puncture Jan. 17, 1896; patient died Jan. 22." What Dr. Wentworth adds is omitted, namely: "No symptoms attended or followed the operation." Moreover, the post-mortem showed that the patient died from the widespread changes common to infantile wasting.

Case 5. The pamphlet says: "Puncture Feb. 3, 1896; patient died Feb. 4." It omits to state what immediately afterward follows, that the post-mortem showed "primary tuberculosis of the intestines. Double pneumonia," as the causes of death.

Case 6. The pamphlet quotes "Puncture Feb. 1; patient died in convulsions three weeks later." It neglects to state what Dr. Wentworth particularly mentions, "no reaction on the part of the patient attended the operation," and it also fails to state that the child was seen only once and that the diagnosis then made was tubercular meningitis, which was clearly the cause of the child's death, three weeks later.

Case 7. The pamphlet quotes "Punctured Feb. 27; patient died Feb. 28. It omits the fact that the post-mortem showed that the child died from defective development of the brain and other causes; and that the history showed that the child, who was 7 months of age, had "frequent convulsions, which began when he was about 3 months old. While in the hospital

1. This letter was written by myself and not by the librarian.

2. I quote the following from the eighth edition of Hare's Therapeutics, as to the use of thyroid extract: "In the dose of from 5 to 20 grains (0.35-1.3) three times a day [i. e. 15 to 60 grains a day] according to the degree to which it produces its effects, it has proved of value in acute mania and melancholia, puerperal and climacteric insanities, and in stuporous states with primary dementia." Berkley's maximum dose was 15 grains a day.

the convulsions occurred not less than twenty times a day. Oftentimes he had several in an hour."

The inference from the pamphlet's "brief abstracts" of these cases is clearly, and it seems to me by these omissions was meant to be, that the deaths were due to the lumbar punctures, whereas the evidence is that the deaths were due to other causes and in two instances the operation is expressly stated not to have done any harm. Are not these abstracts "garbled and inaccurate?"

3. On page 7 the pamphlet refers to some experiments on the inoculation of lepers with syphilis, made in Hawaii, but published in the *N. Y. Medical Record* of Sept. 10, 1892. It is stated that the patients "were already suffering from one incurable disease and the object of the experiment was to ascertain whether with another, and even worse disorder, they might not be infected." This statement is incorrect. Most writers recognize only three stages of syphilis, primary, secondary and tertiary. The writer of the article in question believed that leprosy was a fourth and final stage of syphilis and not an independent disease. It is a well recognized fact by all scientific writers that a patient suffering from syphilis in any stage is immune to an inoculation of the virus; that is to say, the inoculation will not "take" if he is already a syphilitic. It was for the purpose of determining whether leprosy was a fourth stage of syphilis that the attempt was made. *None of those inoculated took the disease.*

4. Sanarelli's Experiments on the Inoculation of Yellow Fever, page 8: The references here are to the *British Medical Journal* for July 3, 1897, and the *New England Medical Monthly*, March, 1898. The extracts marked with quotation marks are from the *New England Medical Monthly*. Between the first and the second sentences of the quotation there should be some stars to note an omission, but none such appear. The omitted words state that *not* the germs of the disease, but the carefully filtered and sterilized germ-free fluid was used. Besides this and many other minor inaccuracies many of the scientific terms are changed into non-medical terms, which is not objectionable in itself. But such changes and inaccuracies should exclude quotation marks, for when used they mean that the words quoted are the *ipsissima verba* of the author, if in the same language, or an exact translation if from a foreign language.

But this is the least of all. The pamphlet says that the injection produced certain symptoms, among which are mentioned "the jaundice, the delirium, *the final collapse*," the last three words being in italics in the pamphlet to call special attention to them. In the *British Medical Journal* and in the *New England Medical Monthly* the words "the final" *are not to be found*. We see not a few patients suffering from "jaundice, delirium and collapse" who recover, but when the expression is changed to "the final" collapse it means to every one that the patient died.

Moreover, the end of the quotation is as follows: "I have seen [the symptoms of yellow fever] unrolled before my eyes thanks to the potent influence of the yellow fever poison made in my laboratory." *This entire sentence does not occur* either in the *British Medical Journal* or in the *New England Medical Monthly*. Whether it is quoted from some other source not indicated, or has been deliberately added, I leave you or "A. Tracy" to explain.

Moreover, immediately afterward, on the authority of the Washington correspondent of the *Boston Transcript*, it is stated: "It is understood that some, if not all, of the persons inoculated died of the disease," and then seven times afterward are repeated "the final collapse," the "unrolling before the eyes," "scientific assassination," "death," and "murder" quoted from a public speech before the American Humane Association. Let us see if these *were* "murders."

In the two references given there is no indication whether any of these patients died or not. How, therefore, "it is understood that some, if not all, of them died." I do not know. *As a matter of fact none of the human beings inoculated by Sanarelli died*, as any one desirous of learning the truth could have ascertained by consulting Sanarelli's original publication reporting his experiments with full details. (*Annali d'Igiene Sperimentale*, 1897, vol. vii, Fascic. iii, pp. 345 and 433.)

What hysterical oratory about "the final collapse," which was not final; "scientific assassination," which did not assassinate; and "murder" of those who were so disobliging as still to live! And this on the authority of the Washington correspondent of the *Boston Transcript*, who the pamphlet assures us is a person "who would seem to be unusually well informed in matters of science!" An excellent example of "newspaper medicine" and a good reason for my refusal to accept it as evidence, especially from other correspondents who may not be as "unusually well informed." May I ask whether "the Vienna correspondent of the London Morning Leader" is also one of those who, in your opinion, is "unusually well informed in matters of science," and whether his testimony is as wholly false as the one under consideration?

5. On page 23, the pamphlet quotes an account of some experiments of Dr. Neisser from the "Medical Press and Circular [England], of March 29, 1899." This is an instance again of misquotation and omission which can scarcely be other than intentional. The last sentence of the first quotation states: "of these eight girls, four developed syphilis." No stars indicate that any words have been omitted. The original reads: "of these eight girls [five were prostitutes, and of these five] four developed syphilis." The words in brackets are entirely omitted in the pamphlet. They make a deal of difference, for what is more probable than that four out of five prostitutes should develop syphilis? Whether it makes any differences or not, however, is at present not the question. The issue is whether the quotation is "garbled and inaccurate." Does it not fulfill another of the definitions of "garbling" given in your letter, viz: "omissions of essential facts . . . . sufficient to impair the accuracy or fairness of the quotation?"

Moreover the pamphlet's comment upon this case is as follows: "Does the London journal which reports these awful experiments denounce them as a crime against every law of morality? Not at all. It simply says that 'it would be difficult to acquit Dr. Neisser of a large measure of responsibility in respect of the causation of syphilis in these cases!' Could reproof be more gentle?"

Is that really all that the *Medical Press and Circular* "simply says?" On turning to that journal, after the above sentence, which is correctly quoted, the editorial continues thus: "We, however, are less concerned in establishing the culpability of Dr. Neisser than in condemning the spirit which prompted such experiments. All measures, even if novel, which may reasonably be expected to assist in bringing about the recovery of the patient without injury to his health may legitimately be resorted to with the consent of the patient, but measures, whether by drugs or by operation, which have not for direct object the cure of the patient and which may prove inimical to his health or condition, are inadmissible under any circumstances and must expose the perpetrator to professional ostracism and to penal rebuke."

Is "professional ostracism and penal rebuke" a reproof than which nothing could be "more gentle?" If this statement is not "garbled and inaccurate," what do words mean? How could this misrepresentation be otherwise than intentional?

6. On page 24 again, reference is made to the experiments of Menge.[3] The extracts being in quotation marks would purport to be exact translations. This is not the case. The collocation of the paragraphs, also—especially in the smaller pamphlet—is such that it would be supposed even by a careful reader that the babies experimented upon were inoculated with the germs taken "from the pus in the abdominal cavity of a person who had died of peritonitis," without any precautions or preliminary experiments, and that, therefore, these babies were exposed to a fatal infection. This is not true. Four columns of text in the original intervene between the first and the second paragraphs alleged to be quoted, and these detail experiments which proved that the inoculations which he then carried out would almost certainly be harmless. The result showed that he was right, for not the slightest ill effects followed. I have only words of

3. Deutsche medicinishe Wochenschrift, 1894, Nos. 46 to 48.

condemnation for Menge's experiments, but to misrepresent these experiments is scarcely less culpable than to perform them.

7. Then follows a brief account of Kroenig's experiments. The objects of these, the pamphlet says, were "to observe the surest way of *breeding* purulent bacteria." This is not true. On the contrary, his object, like Menge's, was to determine how these bacteria are normally *destroyed* in the part of the body in which the experiments were made. In only a single instance did any ill effects follow, and in this case the inflammation was brief and not dangerous either to life or health. In fact, the very *titles* of these two papers proclaim the destruction of the bacteria and not the surest way of breeding them, as Menge's title reads: "On a quality (Verhalten) of the vaginal secretion in non-pregnant females, which is *hostile* to bacteria," and Kroenig's is on the same peculiarity in pregnant women.

In the comment on these two series of experiments, they are spoken of as inoculations "with loathsome diseases," which would suggest to any one that the patients were successfully inoculated with syphilis or other similar diseases. This was not the case. Only inflammation would follow even had the inoculations been successful.

Moreover, to show the vague looseness of the alleged quotations, the two paragraphs on the experiments of Menge are in quotation marks and are introduced by the words, "He says: The bacteria I used, etc.," as if they were exact continuous translations. "He says" nothing of the kind. Instead of being exact translations, the first paragraph is made up of partly correct and partly incorrect translations from page 891 near the top of the second column and near its middle; and the second paragraph of partly correct and partly incorrect translations from page 907 near the bottom of the first column. No reference whatever is given to Kroenig's paper either by number, date or page. Is not this "vague and indefinite?" As a matter of fact it is the same journal (No. 43, p. 819) as Menge's paper, but published three weeks earlier.

8. On page 25 is one of the most outrageous instances of garbling, and mistranslation, or worse, which I have ever known to be perpetrated, even in antivivisectionist publications. It relates to observations and experiments of Professor Schreiber, reported in the *Deutsche medicinische Wochenschrift* of Feb. 19, 1891. The subject is introduced with the startling caption: "Inoculations with Tuberculin and Germs of Consumption." In the smaller pamphlet the caption is simply: "Injected Germs of Consumption." What was injected was not the "germs of consumption" at all, but tuberculin, a substance which at the date of Professor Schreiber's publication was engaging the attention of physicians throughout the civilized world as a therapeutic and diagnostic agent. To describe inoculations with tuberculin as "inoculations with the germs of consumption" can be attributed only either to gross ignorance or to wilful disregard of the truth.

In the first paragraph occurs the sentence: "He began with one decimilligram and continued to inject the tuberculin in ever-increasing quantities, until he at last injected as much as 5 centigrams, about 50 times as much as Koch said was the maximum dose for children of 3 to 5 years old." Any fair presentation of these experiments would have included Professor Schreiber's sentence, which he prints in bold-face type: "But even with so large a dose injected at one time, the children showed *no trace of a reaction.*" It would perhaps be too much to expect your society to have indicated on what grounds Professor Schreiber was led to the employment of such large doses, and that his observations demonstrated for young infants an exceptional tolerance of tuberculin, a phenomenon for which there are analogies with other drugs.

But the worst falsification is the succeeding account, in the form of what purports to be an exact translation, of Schreiber's inoculation of a boy with tuberculin. The alleged quotation begins: "I am sorry to say that it is very difficult to obtain subjects for such experiments. There are, of course, plenty of healthy children in consumptive families, but the parents are not always willing to give them up." The words: "I am sorry to say that," and the entire next sentence, "There are, of course, plenty of healthy children," etc., *are not in the original, but are additions made out of the whole cloth.* The next following sentences contain many inaccuracies, such as the translation of the German words *beträchtlich anschwollen* as "swelled up enormously," instead of "swelled up considerably." But the worst is the deliberate insertion of the following sentence, italicized in the pamphlet, *which also does not occur in the original:* "I can not yet say whether the boy will be consumptive in consequence of my treatment." The correct translation of Schreiber's words at the point where this closing sentence appears in the pamphlet is as follows: "I could discover no other alterations in the otherwise apparently healthy boy." [*Andere Veränderungen konnte ich an dem sonst gesund scheinenden Knaben nicht entdecken.*"]

While I have said enough about this case to substantiate my charge of garbling and inaccuracy, I can not refrain from utilizing it also to show the utter misapprehension which the citation of detached sentences and paragraphs from medical articles is calculated to create in the mind of a non-medical reader. Even when the words are quoted correctly, they are likely, when detached from the context, to give rise to entirely false impressions. This is a criticism which applies not only to other examples cited in this pamphlet, but to a very large number of reports of experiments and of quotations from medical journals and books current in anti-vivisectionist writings, and the resulting dissemination of erroneous conceptions is often greater even than that caused by inaccurate or garbled quotations. A brief explanation of the present example will show the justification of this charge.

For what purpose did Professor Schreiber inoculate the boy with tuberculin? His article leaves no doubt as to the answer. He points out the importance of the earliest possible recognition of tuberculosis in a patient in order to secure the best curative results. The boy's mother had consumption and the author calls attention to the frequency of unrecognized tuberculosis in the offspring of tuberculous parents. The boy received a small dose—1 milligram—of tuberculin, which, if he were free from tuberculosis would produce no effect but which if he had unsuspected tuberculosis would produce a transient—though possibly a severe—fever, and a local reaction indicative of tuberculosis. Such reaction followed the injection of tuberculin, and the diagnosis of tuberculosis, which had not been, and very likely could not have been, made in any other way, was established. I do not know what could have been more fortunate for this boy than the recognition in its incipiency of a disease previously unsuspected and which, recognized thus early, should in all probability be cured by proper treatment. This tuberculin test is constantly employed to prevent the spread of tuberculosis in our cattle. In our children it enables us to discover the same disease in an early, curable stage. Shall we care for our cattle better than for our children?

Its use is not properly to be called an "experiment" at all. As I write this, I find in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Jan. 12, 1901, page 75, three cases of the use of tuberculin in human beings by Prof. J. M. Anders, who points out its value in enabling us to diagnosticate consumption "in latent forms and dubious cases, however incipient," long before percussion or the stethoscope will reveal the disease. I can imagine his surprise if he were charged with making three horribly cruel "experiments" and injecting the "germs of consumption!"

It is euphemism to call such an alleged quotation, in which words and one entire sentence are interpolated and another wholly changed in meaning, a "mistranslation" or even a "garbled and inaccurate" account. Does it not amount to literary forgery? It is another illustration of the fact that when an anti-vivisectionist attempts to say anything about scientific experiments either the moral sense is blunted or the truth-telling faculty is in abeyance. A good English example is the misstatements in Miss Frances Power Cobbe's book, laid bare by Victor Horsley, and Schreiber's and Sanarelli's cases will serve as excellent examples of American misrepresentation—if so long a word is needed to describe them.

I am sorry my reply is so long, but in fewer words I could not explain the many and gross errors to be pointed out. I

have given you indeed "many" instances in which the references are "vague and inaccurate," and "some" in which the accounts are "garbled and inaccurate." These adjectives are, I submit, very mild ones to apply to such a pamphlet.

You can hardly be surprised after the extraordinary and repeated interpolations, mistranslations and worse which I have demonstrated in this letter that I am unwilling to accept any alleged quotation or translation emanating from the American Humane Association as accurate and truthful unless I can compare it with the source from which it is derived.

In conclusion let me commend to the "Humane" Association the closing words of President Eliot's letter, to be found on pages 218-9 of the "Hearing": "Any attempt to interfere with the necessary processes of medical investigation is, in my judgment, in the highest degree inexpedient and is fundamentally inhuman."

I shall take the liberty of publishing my reply. I suppose that you will not object to the publication of your letter with it in order to explain the reason for the reply.

Very respectfully yours, WILLIAM W. KEEN, M.D.

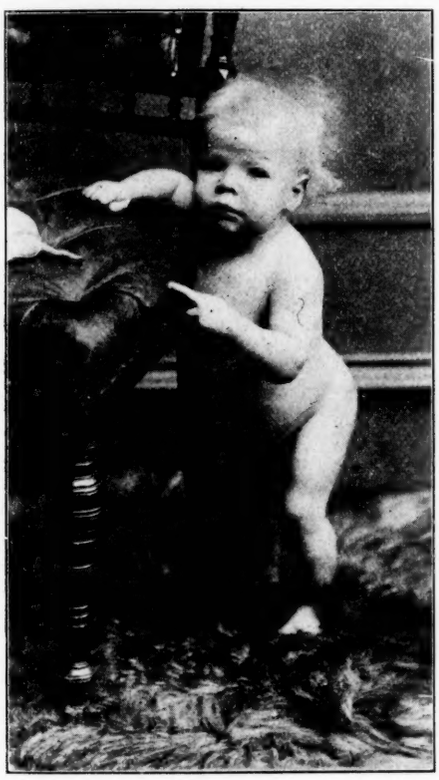
ADDENDUM.

Since this letter was written I have seen an article in "Gould's Year Book of Medicine and Surgery," 1901 (Medical Volume, p. 327), from the *Archives of Pediatrics* for June, 1900, p. 431, by H. Oliphant Nicholson of Edinburgh, Scotland, reporting the case of Annie C., a girl of 2 years and 8 months old, with pictures (see plate), which, with a brief statement of the case, well illustrates what Dr. Berkley has asserted, that "in proper cases, the results [of the treatment by thyroid extract] are among the most resplendent attained by modern medicine, converting the drooling dwarf into an intelligent, well-grown man or woman."

This child was first seen by Dr. Nicholson on October 23, 1894, and the picture shews the "swollen, myxedematous-looking face and body, a markedly curved back and a pendulous abdomen." The child "could not walk without support and dragged her limbs slowly after her." Her vocabulary was confined to calling her mother and father "mum" and "ah," and "her wishes were wholly made evident by signs." Very naturally, therefore, with this low grade of intelligence, she was uncleanly in her habits.

The treatment was begun on October 30, with 2.5 grains of thyroid powder, once daily. This was reduced on November 2 to 1.25 grains once a day, and was continued for several weeks. As early as November 7, improvement was noticed. On November 17 the pulse at the wrist, which was scarcely perceptible through the swollen tissues at the beginning of the treatment, was distinctly felt, and by the 24th, the puffiness of the eyelids and forehead were diminishing and the expression of the face becoming more intelligent. The dose of the extract was now increased again to 2.5 grains. The results I quote as follows: "In about three months' time very few traces of cretinism remained and the child was able to walk about easily without assistance and was making use of the short words and gestures of early childhood. . . . After four months of the thyroid treatment, the improvement seemed so complete that the second photograph was taken and the likeness produced is that of a bright, happy, pretty child, to all appearances normal, both physically and mentally. The improvement continued till the middle of June, 1895, when, unfortunately, she contracted an attack of malignant measles and died on July 16, after three days' illness."

If Dr. Berkley's use of the thyroid extract, which cured two out of eight patients was an experiment, and its administration by Dr. Nicholson also was an experiment, the more of such happy "experiments" we could have, the better.



Illustrating Nicholson's article on thyroid treatment in a cretin (Arch. of Ped., June, 1900). Result of four months' use of thyroid extract.

Tuberculosis Among Postoffice Employees.—The French statistics recently published indicate that tuberculosis is much more prevalent among the picked indoor employees of the post and telegraph service than in the general population, reaching 62 per 10,000, while the general mortality from tuberculosis at Paris is only 49 per 10,000. Tubercular affections represent 15.45 per cent. of the total mortality among the indoor employees, and 10 per cent. among those employed out of doors. Stricter regulations are to be enforced, according to a notice in the *Semaine Méd.* Each employee is to have "a health book" and at the first indications of a tubercular affecton is to be sent to a special sanitarium.

ANASTOMOSIS OF THE URETERS WITH THE INTESTINE.

A HISTORICAL AND EXPERIMENTAL RESEARCH.

REUBEN PETERSON, M.D.

Professor of Gynecology Post-Graduate Medical School; Assistant Clinical Professor of Gynecology, Rush Medical College; President of the Chicago Gynecological Society.

CHICAGO.

(Continued from page 445.)

MORESTIN,[14] 1893. *Twenty-four dogs; ten bilateral, fourteen unilateral implantations; all died, except one, of peritonitis, nephritis, or hydronephrosis; survivor died several weeks later of hydronephrosis and infection.* Morestin experimented on twenty-four dogs with a view of uniting the ureters with the rectum. In ten cases a bilateral implantation was made. The method employed in six cases was to whip-stitch the intestinal mucosa about the ureter after the latter had been thrust into the rectum. The six animals died of peritonitis or ascending renal infection. In four cases the ureteral mucosa was sutured to the rectum. Of these, two died of infective peritonitis and two from uremia from compression of the ureters. In fourteen dogs unilateral implantation was tried, four times without and ten times with preliminary dilatation of the ureter by the application of temporary ligature. The first four animals died from peritonitis. In four cases where simple dilatation was practiced, three died of peritonitis, and one lived several weeks and died from hydronephrosis and infection. In the six remaining dogs, after previous dilatation, the ureter was sutured to the rectum laterally. All died from hydronephrosis or infection.

Morestin's conclusions are that bilateral implantation of the ureters into the rectum is entirely inadmissible, and single implantation only admissible in extreme cases. The primary mortality in man should be less than in animals, because of the larger size of the ureters and the possibility of securing better asepsis.

THOMPSON,[21] 1893. *Number of implantations not stated; one dog survived; after three weeks ureter and pelvis of kidney markedly dilated.* Thompson makes a brief mention of a successful implantation of the ureter into the small bowel. The exact method employed is not stated. The post-mortem at the end of three weeks showed the uretero-rectal union good, the ureteral orifice patent, but the ureter and pelvis of the kidney markedly dilated.

The hydronephrosis was ascribed in part to the stenosis and partly to the mobility of the intestine. The attempts to unite the ureter with the colon or rectum were failures.

GIORDANO,[6] 1894. *Sixteen dogs, three survived; pyelonephrosis; uretero-rectal stenosis.* Giordano, in order to do away with the dangers of implantation of the ureters into the bowel by the intraperitoneal route from his experiments on animals and cadavers, proposed the removal of a portion of the sacrum and an extraperitoneal route. In 1894 he published in detail a series of experiments in sixteen dogs, where the ureters had been implanted into the bowel extraperitoneally by lumbar incisions or through the sacral region. No microscopic or bacteriologic examinations of the specimens were made, and the descriptions of the gross specimens are exceedingly vague.

Out of sixteen dogs only three lived more than a week. In one case both ureters were implanted in the colon by lumbodorsal incisions. Death on third day; obstruction in left ureter; both kidneys congested.

In three cases this same operation was performed in two stages, first one and then the other ureter being implanted. One dog died from anesthetic at second operation, seven days after the first; ureter normal; kidney not enlarged.

The two other dogs lived one hundred and twenty-one and eighty-four days. The post-mortems revealed uretero-cutaneous fistulæ in both, associated with dilatation of the pelves of the kidneys, stenosis of the ureteral orifice and pyelonephritis.

In eight instances both ureters were implanted into the rectum. Of these, five died of peritonitis or sepsis, with congestion of the kidneys. One dog died from hemorrhage from the anus. In this case tubes had been used in the ureters. One animal lived seventy-seven days; autopsy showed fluid in abdominal cavity, due to intraperitoneal rupture of kidney abscess, other kidney being of normal size. In three cases the ureters were implanted in the rectum with the formation of an artificial anus; wounds were always infected and kidney congestion marked.

Giordano's conclusions are: that if the ureters are not obstructed there does not necessarily follow any infection of the kidneys. It is best to implant the ureters extraperitoneally and at two sittings.

VAN HOOK,[24] 1893. *Sixteen dogs; seven recoveries; two with one ureter in small intestine; pyelonephritis and uretero-rectal stenosis; five with one ureter in rectum; pyelonephritis in each case; uretero-rectal stenosis.* Van Hook implanted a single or both ureters into the small or large intestine in sixteen dogs. This experimenter's primary mortality has not been equalled before or since. This fact, together with the accuracy with which the post-mortem findings are recorded, warrants a careful study of his cases.

The following method of implantation was employed: After isolating the ureter with an ample fold of the peritoneum, it is severed and its end split upward with scissors a short distance. Two small needles armed with a single fine silk or catgut thread are passed from within outward through the split end of the ureter. The two needles are now carried downward through a small slit in the bowel and made to penetrate the bowel one-half inch below the point of entrance. The ends of the thread are tied, retaining the ureter in place. The knot is covered with Lembert sutures and the bowel opening closed as tightly as possible without compressing the ureters.

In two dogs a single ureter was implanted in the small intestine, eighteen inches above the ileocecal valve. Both recovered and were killed ten days later. The kidneys corresponding to the implanted ureters were found smaller and showed pyelonephritis. The opening into the bowel in both instances was somewhat stenosed and there were two drams of purulent fluid in the pelvis of the kidney and ureter.

In eight dogs one ureter was implanted into the rectum, with three deaths. Corresponding kidneys violently inflamed, being swollen, turgid and heavy, with muco-pus on the mucous membrane of the pelvis. Pelvis of the kidney, opened with a red-hot knife, contained a few drops of mucopurulent fluid. Uretero-rectal orifice patent. Microscopic examination showed violent hemorrhagic inflammation of the pelvis and pyramids of the kidney. Cultures showed numerous bacteria.

Five dogs recovered, and were killed from fourteen to twenty-one days after the operation. In three dogs, kidney corresponding to implanted ureters showed suppurative inflammation. Only the smallest probe could be made to pass the rectal opening.

In six dogs both ureters were implanted into the rectum. All died within six days. Four deaths due to general peritonitis. In two cases there was obstruction of the ureter and retention of urine in the pelves of the kidneys. Conclusions are that implantation of one of both ureters into the rectum is absolutely unjustifiable under all circumstances, because: 1, the primary risk is too great: 2, there is great liability to stenosis of the duct at the point of implantation; 3, suppurative uretero-pyelonephritis is almost absolutely certain to occur either immediately or after the absence of months or years.

CHAPUT,[3] 1894. *Numerous dogs; number not stated; all died.* Chaput performed many experiments on dogs, making use of a great variety of methods in his attempts to anastomose the ureters with the rectum. His efforts were entirely unsuccessful. He ascribes his failures to the small size of the dog's ureter and to the great rigidity of the intestinal walls, causing the sutures to cut through and rendering union almost impossible. He thought that experiments on dogs would prove of but little value in determining the effects of ureteral anastomosis in man, as the bacterial contents of the dog's intestine were much more virulent and consequently more liable to give rise to serious lesions in the ureters and kidneys.

MAUCLAIRE,[15] 1895. *Number of dogs not stated; upper part of rectum cut off and ureters implanted therein; all died.* Mauclaire, in order to avoid ascending infection when the ureters are implanted in the rectum for the cure of exstrophy of the bladder, amputated the rectum and inserted the ureters in its upper part after first establishing an artificial anus in the inguinal region. All the animals died of infection from the intestinal resection or from uremia resulting from the uretero-rectal implantation. For fear of leakage, he advises extraperitoneal implantation. While he was obliged, in dogs, to make the artificial anus in the inguinal region, his studies of the cadavers of young children have shown that the superior intestinal fragment can be brought down into the pelvis and the artificial anus established in the left ischio-rectal region.

VIGNONI,[25] 1895. *Seven dogs, with one recovery; V-shaped flap; no report of findings.* Vignoni performed seven experiments on dogs, and succeeded in making only one live more than two months with one ureter in the rectum. He made use of a V-shaped flap cut out of the anterior wall of the bowel; after placing the ureters on this flap, the former are covered by suturing over them the lateral folds of the bowel wall. From these experiments Vignoni concludes that it is advisable to implant one or both ureters into the rectum for certain conditions.

LINDNER,[11] 1895. *Number of dogs not stated; implantation into transverse colon, with satisfactory results.* Lindner, in a discussion of Trendelenburg's case of removal of the bladder, mentioned that in a series of experiments made a few years before on very large dogs, he had transplanted the ureters into the transverse colon and found that the urine passed per anum in a very satisfactory manner. The dangers of infection are increased when both ureters are implanted, and in order that the ureters may not pull out it is advisable to retain a portion of the bladder wall.

KRYÑSKI,[9] 1896. *Numerous dogs, number not stated; ureterorectal stenosis, hydronephrosis, and infection; by new method all recover.* Kryñski states he has proved that infection of the kidneys, stenosis of the ureteral orifices, and hydronephrosis will result from implantation of the ureters into the intestine by the usual methods. He then describes an operation, by following which he has never seen a single case of disease of the ureters or kidneys.

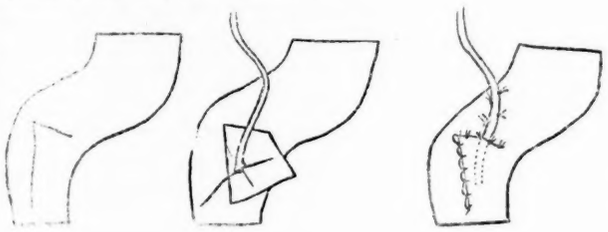


FIG. 3.

A triangular incision is made (Figs. 1, 2 and 3) through the serosa and muscle on the anterior inner margin of the gut just below the sigmoid flexure. The longest side of this triangle is 2.5 to 3 cm. in length; the shortest, 1 cm. A small incision is made in the mucosa at the apex of the triangle. The ureter is cut off obliquely, and is united to this incision by four interrupted sutures joining the rectal to the ureteral mucosa. The triangular flap is now sewed over the implanted ureter, a continuous suture being used for the long side and interrupted sutures for the short side. Too tight sewing of the triangular flap will produce an obstruction of the ureters.

PISANI,[18] 1896. *Two dogs; both died; collapse and peritonitis.* Pisani performed the following operation on two dogs: The abdomen was opened and a rectangular flap removed from the bladder, containing the ureteral orifices. The rectum was now isolated and an incision 3 to 4 cm. long made in its anterior wall. A portion of the posterior rectal mucosa corresponding to the bladder flap was freshened, and to this was sutured the flap containing the ureteral orifices. The anterior rectal wall was now sutured and the abdomen closed.

One dog died in sixty-two hours. Collapse and obstruction assigned as causes of death. Ureters not dilated. The flaps were united; kidneys normal; urine evacuated easily through rectum. The second animal died of septic peritonitis, caused by rupture of the abdominal wound. Evacuation of urine satisfactory; no dilatation of ureters.

BOARI,[2] 1896. *Four dogs; four recoveries; two still living; in two dogs kidneys macroscopically normal.* (?) Boari, by means of his anastomotic button, succeeded in uniting the ureters to the rectum in two dogs. The first animal lived fifty-two days after the left ureteral implantation and fifteen days after the right. The ureters were not dilated. The right ureteral opening was surrounded by a small papilla-like valve. The kidneys macroscopically showed no grave lesions. There was no hydronephrosis, although the pelvis of the right kidney was slightly dilated. The second dog was killed thirty-two days after the implantation of the right ureter into the rectum. The macroscopic appearance of the kidney was normal and the pelvis of the kidney was not dilated. Two more animals had been operated on successfully, and were still alive at the time of the report.

LESTRADE,[10] 1898. This experimenter implanted the ureters into the rectum in four dogs, using Chalot's anastomotic button, but the animals all died of sloughing of the sutures and escape of urine into the peritoneal cavity.

MARTIN,[12] 1899: *Forty-two dogs, five recoveries; pyelonephritis; numerous bacteria in kidneys; chronic interstitial nephritis.* Martin presented before the Chicago Gynecological Society the specimens and post-mortem findings from three dogs where the ureters had been implanted in the rectum. The animals had lived four, eleven and ten months, respectively, after the operations. In one case both and in another a single ureter was implanted in the rectum. In the third dog one ureter was implanted in the jejunum eight and one-half inches from the pyloric orifice. The rectum acted as a perfect substitute for the bladder in all cases.

The post-mortem showed marked changes in the kidneys corresponding to the implanted ureters. There were evidences of an active pyelonephritis in two dogs, as shown by the presence of purulent fluid and numerous bacteria. In one dog a very few coli bacilli and diplococci were found in the pelvis of the kidney. The kidney was smaller than the other and presented interstitial changes, resulting from an old pyelonephritis. Thirty-four dogs were operated on and only three survived. The implantation was made perpendicularly to the axis of the intestine.

The author publishes in the same month a new method of implantation of the ureters, having for its object the making of subsequent infection of the ureters and kidneys impossible. The ureters are buried in the walls of the rectum for a distance of an inch or more longitudinally, so that the ureters may be milked downward by the contraction of the bowel-muscles artificially surrounding the ureters. The ureters are dissected away from the peritoneum for three inches by the finger. Longitudinal incision, two inches in length, is now made in the peritoneal and subperitoneal tissue of the bowel. The remaining coats of the bowel are opened by a small incision, through which are passed two needles, to which are attached silk ligatures passed through the coats of the bowel below the incision and the ureters made taut and attached to the fibrous and muscular coat by silk sutures, care being taken not to penetrate more than the fibrous coat of the ureters. The peritoneum is now closed about the ureters by a continuous suture.

Dr. F. R. Zeits' examination of a dog operated on three months previously by this method showed both ureters patent; suppurative nephritis existed in the right kidney; pelvis normal; bacteriologic examination negative. Left kidney shows chronic interstitial nephritis; capsule slightly adherent; pelvis normal. Bacteriologic examination of right kidney showed coli communis present; none in the left.

MATAS,[13] 1899: *Four dogs—two with Boari button and two Maydl's operation—all died; first two, renal infection; last two, peritonitis.* Matas employed Boari's technique in two dogs and united the intestine to the ureters, but the dogs died from acute ascending renal infection. In two dogs in which the Maydl operation was tried, one died in twenty-four, the other in thirty-six hours. In both the vesico-ureteral grafts were perfect. In both there was septic peritonitis, caused by infection from the bowel at the time of the operation, and in the dog that survived thirty-six hours there was also intense hyperemia of the kidney.

KALABIN,[8] 1899. *Thirteen dogs; Maydl's operation five times, five deaths; one dog survived one month; kidneys normal; ureteral orifices patent; one survived thirteen months; showed interstitial nephritis.* Kalabin, to verify Morestin's experiments of implantation of the ureters into the rectum, experimented on thirteen dogs. Maydl's operation was performed on five dogs; three died of peritonitis, two of uremia.

In four dogs he implanted a single ureter into the rectum. Three of the four died; two of peritonitis, one of uremia. The fourth dog lived a month; post-mortem showed kidneys normal. In four other dogs where a single ureter was implanted in rectum, two died of peritonitis and one of uremia; one dog survived thirteen months. The kidneys showed an interstital nephritis. The ureter and rectal mucous membrane were normal.

FRANK,[5] 1900: *Uretero-rectal anastomoses; number of dogs not stated; infection in every case; vesico-rectal anastomosis with Frank coupler, fifteen dogs, ten recoveries; five post-mortems show but slight changes in kidneys.* From his experiments on implantation of the ureters into the rectum, Frank's conclusions were that infection of the kidney supervenes in every case and that no better results could be looked for in the human being. In order to preserve the ureteral orifice intact and thereby prevent an ascending kidney infection, Frank, by means of his bone coupler, made a communication between the bladder and the rectum in fifteen dogs, with ten recoveries. For a week after the operation urine and feces were voided oftener than after this period. The feces are always passed in a liquid form, being softened by the urine. Two dogs operated on six months previously are alive and well. In the five dogs in which post-mortem findings are reported, two show colon bacilli in the kidneys; one is not free from bacteria, but they are neither colon bacilli nor staphylococci; two cases show histologic changes in the form of round-celled infiltration. In one case the left kidney is noted as congested and the ureter enlarged to double its normal size.

Frank's conclusions are that the recovery of the dog and the macroscopic appearance of the tissues do not necessarily signify absence of infection; that the dogs killed thus far show that the operation of vesico-rectal anastomosis can be performed without a resulting kidney infection.

(To be continued.)

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YELLOW FEVER AND ITS TRANSMISSION.

The results of the experiments of Drs. Reed, Carroll and Agramonte, as published in our last issue, are certainly remarkable and convincing. That yellow fever is transmissible by the mosquito is proved, and that our previously-held theories of its propagation must be amended can not be denied. Some even hold that it leaves us nothing to do in the way of quarantine and disinfection, and this view is largely taken at once, offhand, by the lay press generally, and by some of the members of the medical profession. These seem to have at once assumed that the questions are settled and that the quarantine precautions of the past have been useless and can be dispensed with in the future. The problem of yellow fever is held by them to have been solved.

This we feel assured is not the conclusion that the more conservative authorities will admit. The results were most striking and must assuredly throw a doubt upon all former theories of infection, etc., but any one accustomed to weighing evidence must acknowledge that much yet remains to be demonstrated before we can positively say that the disease is not transmitted in other ways than those indicated by the experimenters. The comparison with the malaria discoveries, which themselves still lack something of absolute completeness, is not entirely applicable. We know the malarial organism and to a great extent its life history, though there are yet some points requiring knowledge. The germ of yellow fever, however, is still in dispute and these investigations themselves oppose the validity of the only organism heretofore recognized as such. Not knowing even the existence of the germ except by justifiable inference, we know nothing of its peculiarities except that it appears, like the malaria germ, to be transmitted by mosquitoes and to require a certain period for its life cycle. As far as the investigations have been reported, it does not seem positively proved that it has for its host any one exclusive form of mosquito, and there are yet variances between the views of such an experienced clinical observer as Dr. Finlay, the originator of the mosquito-transmission theory, and the findings of the experimenters. There is a close resemblance in method and results between these experiments and those of Drs. Sambon and Lowe on malarial transmission, but the latter only finished off in full the chain of facts that led almost inevitably to the conclusions they demonstrated.

Admitting, however, as it seems probable we shall be compelled to do, that the mosquito-borne theory of yellow fever transmission is correct, it does not necessarily follow that all the former precautions are useless or even that there may not be other methods of introduction of the infection into the human system. The experiments with fomites appear to be almost, if not absolutely, conclusive, but conditions might occur that were not realized in these experiments. We have to consider the fact that the subjects of experimentation were men in good general health, and their morale and the psychic surroundings, so to speak, were of the best character to make them resistant to contagion. This last—the psychic element—is one that is not to be slighted, as clinical experience has amply proved on numerous occasions.

The utility of disinfection, if not of quarantine, has been repeatedly demonstrated; if ships, cargoes, and fruits can not convey the germs in a way to be directly dangerous, they can none the less convey the infected mosquitoes. These insects, as is well known, are often carried long distances by public conveyances, and this is very probably the origin of many local outbreaks of yellow fever, hitherto attributed solely to fomites.

The experiments of Drs. Reed, Carroll and Agramonte mark a great advance in our knowledge of yellow fever, and we do not in the least discredit them. For them to be accepted as conclusive, however, and as overthrowing at once all former notions, is not exactly the scientific course; they point the way to other observations which must be chiefly clinical and confirmatory. The organic cause of yellow fever must be sought out and its life history determined. The facts already obtained must guide us to others, but though it seems to us probable that all the apparent consequences of these experiments may yet have to be accepted, in the meanwhile it would be foolish to think of neglecting all hitherto accepted safeguards against the disease, as some are intimating should be done.

A PLEA FOR ADEQUATE DOSAGE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

It seems like a repetition of ancient history to dwell at this day upon the life-saving power of diphtheria antitoxin and to cite statistics showing the reduction in mortality that has been effected by its employment. The time has passed when there can be any difference of opinion on these points. One feature, however, can, it seems, be profitably discussed, inasmuch as the antitoxin is not universally administered in doses capable of yielding the maximum beneficial effects, partly as a result of a not unnatural conservatism and partly from the want hitherto of comparative data of convincing value. From a number of sources the recommendation has of late been made for the employment of larger doses of antitoxin than has been customary, especially as the agent is capable only of good, and no seriously ill consequences can be attributed to its action. For those who

may have felt any doubt in this connection the publication, recently, by Dr. J. H. McCollom,[1] of the statistics for the South Department, a hospital opened in Boston in 1895, for the treatment of cases of diphtheria exclusively, must bring conviction.

It appears that since a record of cases was begun in 1878, Boston has suffered more from the inroads of diphtheria than any other large American city. Although a marked reduction in the mortality has been effected in recent years, the number of deaths from this disease in 1894 was 817, and in 1898, 170. The case-mortality has ranged from 35.7 per cent. in 1881 to 9.76 per cent. in 1899, and the disease in the latter year was of an extremely virulent type. While the ratio of mortality from diphtheria, for 10,000 of the living in Boston, in 1893 was more than 11 and in 1894 more than 19—being higher than in London, Liverpool, Glasgow and Paris, as well as New York, Philadelphia, Brooklyn, Chicago and St. Louis—by 1898 it had fallen to 3, and in 1899 it was 4.9, as low as in some and lower than in others of the cities named. This reduction coincides with the opening of South Department in 1895, when every case of diphtheria admitted was treated with the antitoxin. Prior to this year only about 10 per cent. of the reported cases were treated in hospitals, while in succeeding years 50 per cent. were so treated.

The excessive prevalence of diphtheria in Boston is shown by the fact that the ratio of morbidity in 1895 was 81, and in 1899, 51; while in Glasgow it was in 1898 only 5.9, in London 25.62, in New York 37.06, and in 1899 in New York 38.77. With the reduction in the morbidity ratio in Boston there has been also a reduction in the mortality ratio per 10,000, from 11.73 in 1895 to 4.99 in 1899, and in the case-mortality, from 14.48 per cent. in 1895 to 9.76 in 1899. Prior to 1895 the mortality rate from diphtheria in the Boston City Hospital was 46 per cent., while in the five years that the South Department has been in operation—and 7657 cases were treated—the mortality has been 12.09 per cent. Of this number 772, or 10 per cent., required operative intervention. In 100 others, marked laryngeal symptoms were present, but the stenosis was relieved by the antitoxin. The mortality in cases requiring intubation was 34 per cent. This is due in part to the fact that the serum was administered in large doses when there was any indication that the membrane was extending into the bronchi.

The guiding rule in the administration of the serum is that it must be given until the characteristic effects are produced, namely, shriveling of the membrane, diminution in nasal discharge, correction of fetid odor and general improvement in the condition of the patient, whether 4000 or 70,000 units be required. The injunction is laid down that no case of diphtheria in the acute stage should be considered hopeless, but antitoxin should unconditionally be administered. In illustration of the advantage of the early administration of antitoxin, it is pointed out that, since September, 1895, there have been 101 cases of diphtheria among the staff of South Department, contracted in the line of duty, without a single death. Each patient received a full dose of 4000 units at the outset, or as soon as there were any symptoms of the disease. In some instances it was not necessary to repeat the dose, while in others it was repeated two or three times. In none was there any marked paralysis or any heart complication, and the duration of the illness was comparatively short. Altogether, small doses of antitoxin proved of little avail in the treatment of grave cases, but the best results were yielded by heroic doses. When death occurred it was due to nerve degeneration or septicemia. In no instance was any injurious effect produced by either large or small doses of the antitoxin.

In view of all of the evidence there can no longer be any excuse for failure to administer the antitoxin in every case of diphtheria, mild or grave, and the earlier the better, in dosage sufficient to bring about the desired result.

1. Boston Med. and Surg. Jour., 1900, No. 25, p. 627.

SCIENTIFIC USE OF HOSPITALS.

Sir Michael Foster discourses upon this interesting topic in a recent magazine article.[1] While much that is already known must be learned by the medical student, there remains a vast extent of unknown that must be learned before the healing art may gain the mastery of disease desired so much by all. Our hospitals offer great opportunities for gathering new truths, but unfortunately adequate use is not made of these opportunities, not only in England but also in this country, and quite likely elsewhere as well. Sir Michael Foster meets the constantly recurring agitation against hospitals being used for the purposes of experiment—which is the favorite phrase of those misdirected persons who hold that hospitals ought not to serve for advancing knowledge—by pointing out that every sick person who seeks medical aid makes himself the subject of an investigation, that no physician or surgeon is ever absolutely sure of the result of his act, while the knowledge gained by the result thereof is always made of use to others.

Thus every hospital and every doctor's office becomes the daily scene of a continued series of experiments, each for the special and immediate benefit of the patient who is subjected to them. And rightly used this newly gained knowledge makes for the welfare of succeeding patients, each increment of knowledge meaning decrement of human suffering. The welfare of the individual patient and the advancement of knowledge go hand in hand. Looking at the daily work of a hospital in this broad way, is not Sir Michael Foster in the right when he ventures the criticism that the analysis of the phenomena observed at the bedside and in the laboratory is only too often not so exact, so complete and so systematic as it ought to be?

1. The Nineteenth Century and After, January, 1901, 57-63.

Such analysis demands the use of exact methods and of the instruments of precision of physics, chemistry, and biology.

A few test-tubes, an alcohol lamp, and a microscope are no longer adequate for the exact and complete analysis of the phenomena of disease, which now requires clinical and other laboratories fully equipped with a variety of appliances. These laboratories are distinct from educational laboratories because they are to be used for the direct and special benefit of the patients. A complete study and analysis of this character may be of great use in determining facts of signal importance as regards the nature of the patient's disease; data may accumulate for the purpose of subsequent inquiry and study; but the highest value of the results of proper analysis lies in their use to throw light on the nature of disease. This means the institution of a series of inquiries with definite ends in view. Every surgeon and every physician, from the chief down to the lowest grade, should be animated by the spirit of inquiry and research; even then but a fraction of the problems presented could be properly handled. "The harvest of truth is plentiful, but the laborers are few."

Sir Michael Foster's assertion that the great hospitals of London are behindhand in equipment and in the kind of work that advance medical knowledge is true when applied to most of our own hospitals as measured with his standard even though it was what he heard on this side of the water during his recent stay here that led to the thoughts put forth in this article! The organization of the majority of our large hospitals is utterly inadequate to make scientific use of the opportunities offered for advancing medical knowledge. A hospital with its wards and its scientific equipment is in reality a great medical laboratory whose duty it is to heal the sick and to increase knowledge, the two being inseparable. It may confidently be asserted that where the second duty is not or can not be performed properly, there the first also suffers neglect.

THE ARMY MEDICAL SERVICE.

Under the army reorganization act, which has now become a law, the medical corps is enlarged from a total of 192 to 321 medical officers, including the surgeon-general with the rank of brigadier general, 8 assistant surgeon-generals with the rank of colonel, 12 deputy surgeon-generals with the rank of lieutenant-colonel, 60 surgeons with the rank of major, and 240 assistant surgeons with the rank of first lieutenant, mounted, for the first five years, and the rank of captain, mounted, thereafter until promoted to major. There are now, therefore, 129 original vacancies in the corps of assistant surgeons, and the war department has published a circular of information for candidates seeking these positions, which can be obtained by application to the Surgeon-General of the Army, Washington, D. C. The examinations, which will be held at an early day, are both physical and professional. Candidates must be citizens of the United States, between the ages of 22 and 29, except in cases where they have served honorably in the Army of the United States as commissioned medical officer of volunteers or as acting assistant surgeon when the age limit is raised to 34 years. Permission to appear before the board is obtained by letter to the Secretary of War, which must be in the applicant's handwriting, giving date and place of birth and be accompanied by certificates, based on personal acquaintance, from at least two reputable persons, as to citizenship, character and habits. The examinations are thorough, the professional one both oral and written and including also clinical bedside diagnosis and prescriptions and operations on the cadaver. Candidates must also show evidence of at least one year's hospital experience or at least two years of private practice since graduation. Degrees from other than medical schools approved by the board, or first-class teachers' certificates, will usually exempt the candidate from examination in other than professional subjects, but any evidence of deficiency in general education on elementary subjects will subject the candidate to a special oral examination in arithmetic, history, geography, literature, and physics, which if not satisfactory will be cause for his rejection. Candidates claiming especial knowledge of higher mathematics, languages, drawing, chemistry, or branches of natural science will be examined in those subjects as accomplishments, and will receive due credit therefor according to their proficiency.

To save needless expense to candidates, a preliminary physical examination may be undergone by special permission, at the nearest military post or recruiting station, but any opinion from such will not be binding on the regular examining board.

The merits of the candidates in the several branches, and their relative merit as shown by the whole examination, will be reported by the board, and in accordance with such report, approved candidates will be appointed to such vacancies as may exist within two years. No allowance will be made for expenses of persons undergoing examination.

The pay of an assistant surgeon for the first five years is $1600 per annum; after promotion to captain's rank it is $2000, which, with the 10 per cent. increase for five years' service, is $2200. After ten years' service as captain the pay is $2400. The pay of a surgeon with rank of major is $2500 with 10 per cent. added for each five years of service, till after twenty years it is $3500. Liberal allowance for quarters, where not furnished, traveling expenses on duty, and other perquisites should be counted as adding to the remuneration.

Since 1893 an army medical school or special course has been authorized and maintained at the Army Medical Museum, Washington, for the purpose of instructing medical officers who have been appointed since the last preceding term of school and such others as may be authorized to attend. The course covers five months, commencing in November, and includes the subjects

of the special duties of army medical officers, customs of the service, military hygiene, etc., so that the newly-appointed officers do not go at once unprepared to their new duties.

It will be noted that the chances for appointment are not limited to the vacancies now existing, but include whatever vacancies may occur within two years of a successful examination. At no time in the past have the opportunities been better for qualified young physicians to enter the regular army medical corps, than at the present time.

The army career promises to the young surgeon steady employment with constantly increasing pay and the prospects of retirement with reasonable compensation at the age when one would feel ready to be relieved of active duties. While it does not promise the rewards of exceptional success in general practice, it certainly does giver better prospects than the average practitioner can reasonably expect. The social position is good, the chance for self-improvement and scientific work is ample. The government is liberal at its posts, with instruments, means and journals, and any physician with a scientific turn of mind will find himself favorably situated to follow out his specialty. While in some respects the practice is limited and some of the posts to which a physician may be sent are not desirable, changes are always likely to take place for the better.

PROPRIETARY MEDICINES AND THE REVENUE STAMP.

A portion of the lay press is up in arms against the senate modification of the revenue bill that keeps up the stamp tax on proprietary medicines with secret formulæ. It is easy to see the motive of the opposition: the patent medicine advertiser is one of the chief sources of income of many newspapers and whatever is against his interests is against theirs also. This is no reason, however, why the interests of the public should not be held as above those of owners of private formulæ and advertising publishers. Patent medicines, so-called, are as a class directly harmful to the public, and it is unfortunate that the tax is not great enough to put them out of existence. But failing this, there is no reason why they should not contribute to the government revenues. It will, moreover, be a distinct advantage to the medical profession to know by a government mark, at sight, what preparations are ethical and what are not. The amended bill is now before a conference committee, and we trust that this senate amendment will go through unchanged.

A CENSORSHIP FOR ARTICLES OF THE MATERIA MEDICA.

The choice of drugs in the treatment of disease is daily becoming increasingly difficult, not only on account of the large number being constantly exploited, but more especially by reason of uncertainty as to their nature and efficacy. Only one who has been placed in a position requiring a clear-cut decision can realize how great, at times, is the difficulty of forming an opinion as to the medicinal value and the ethical standing of a large number of preparations on the market at the present day. We fear that often the most advertised remedies—sometimes irrespective of their merits—are those that are most largely used. For these reasons we sincerely join in the hope recently expressed editorially,[1] that the near future may see established "a proper censorship, to act as a directing agent, protecting the profession from deception," whose duty it shall be to decide as to the therapeutic value and the ethical character of all, and especially new, drugs and combinations of drugs, as well as a host of allied substances, such as glandular extracts, artificial foods, food-substitutes, and the like, offered to the medical profession. As matters stand, guilty and innocent among manufacturing pharmacists must suffer alike, to the detriment and the disadvantage of the practitioner of medicine.

FATALITY OF THE RATTLESNAKE.

A paragraph is going the rounds of the lay press that, according to the statements of a prominent professor in the University of Chicago, death from rattlesnake bite is a great rarity. He is reported as saying that for twenty years he has sought in vain for an authoritative case of death from that cause, and though many reports have been investigated they have proved unfounded. Only recently has he come upon a genuine case, and it is sufficiently remarkable to make it especially notable as an exception to the general rule of the non-fatality of rattlesnake bite. It is only fair to state, in this connection, that the professor referred to is not a medical man and is not connected with the medical department of the university. This will probably account for the ill success of his researches to discover fatal cases; if he had consulted medical literature or had a wide acquaintance with medical practitioners, the results would have been different. It is true that popular ideas of the deadliness of snake bites are exaggerated, and that the bite of some of the smaller and more common species of the Crotalidæ are not as serious as those of the larger ones. There is, however, ample reason to avoid such accidents, and if deaths are rare they nevertheless are frequent enough to justify the common dread of these reptiles. It would be unfortunate should such utterances be credited to the extent of leading any one to needless risks or to avoid necessary precautions as regards bite from poisonous snakes.

JAMAICA-GINGER DRINKERS' AMBLYOPIA.

Since 1897 a number of cases of amblyopia from the use of extract of Jamaica ginger have been reported in medical journals, two of which having appeared within the last month. In all cases the cause of the symptoms has been credited to the ginger constituent, and some speculation has been indulged in as to how it could produce the retrobulbar neuritis or whatever other lesion was assumed to be its underlying pathologic condition. Aside from these observations, there is no evidence of any such special toxic action of ginger. It may, if taken in excess, be irritating to the stomach or throat, but it has otherwise no record to place it among the active poisons to the nervous system. This fact has been one

1. Merck's Archives, January.

of the puzzles to the reporters of these cases. Alcohol in excess, especially with tobacco, can cause the symptom, but the ginger-essence drinkers do not appear to have imbibed enough alcohol to thus account for it; at least it was not so credited. Now, however, there comes a report from Baltimore that certain manufacturers or wholesale druggists have been putting out on the public an essence of ginger the alcoholic constituent of which is methyl alcohol, or possibly what is called methylated spirit, instead of the more expensive ethyl alcohol, a substance which Casey A. Wood[1] and others have shown to be quite capable of producing amblyopia, not merely when ingested internally, but also when inhaled or otherwise absorbed in its concentrated form. This, if true, and it is said that the accusation is backed by the Medico-Chirurgical Faculty of Maryland, will go far to account for the misfortunes of the ginger-essence topers who are said to exist in large numbers in the dry towns of Maryland, West Virginia and Pennsylvania. The way of the transgressor whose appetite for alcohol leads him to indulge in drug substitutes is hard in many ways, and this is only one of them. It is likely, moreover, that the transgressing druggists may also find themselves embarrassed with damage suits and a more or less dilapidated reputation.

THE HEALTH OF THE ARMY IN THE PHILIPPINES.

The annual report of Col. Charles R. Greenleaf, assistant surgeon-general U. S. A. and chief surgeon of the division of the Philippines, contains a number of interesting facts. He shows that the percentage of non-effectives in the forces has decreased, but he thinks that sickness and mortality can not be expected to decrease in the future as the effects of tropical exposure are cumulative. In cases of reduced vitality from tropical diseases, a return to the United States is an imperative necessity, and this is accentuated by the effects of nostalgia and mental strain due to the special character of the service in the small posts and the assassinating methods of the insurgents. For want of a better name, the mental state thus induced is called insanity, but it is often completely cured by the journey home. It is evidently a state of neurasthenic depression hardly deserving the name of insanity. While somewhat pessimistic in tone in some respects the report still gives encouraging facts. With improved sanitation, Dr. Greenleaf believes the sickness could be reduced by nearly one-half; the embarrassments in obtaining this are due chiefly to the shortage of medical officers—there are only 233 effective to supply over 400 posts, supervising duties, general hospitals, China details, etc., taking up the remainder of the already inadequate force of 336 surgeons in the archipelago. This is one of the worst features of the situation and is aggravated by the unavoidable inexperience of many of the acting assistant surgeons, who have to fill out the number and supplement the small number of regular army officers. Other features of interest in the report are the data as to prevalent disorders, among which we find that venereal disease, that special scourge of the British army in the tropics, has only a very subordinate place; the remarks on the army ration, on leprosy, etc. The report, while brief, is a most interesting medical document, and one that is an important contribution to military medical literature.

1. JOUR. A. M. A., xxxiii, p. 1653.

TREATMENT OF CHRONIC CATARRHAL DISEASE OF THE MIDDLE EAR BY MEANS OF INTRATUBAL INJECTIONS OF PILOCARPIN.

In many cases of impaired hearing dependent on catarrhal and adhesive processes in the middle ear, considerable improvement can be effected by patient, persistent and systematic treatment of the nasopharynx and the ear itself through the Eustachian tube. In some, however, the auditory defect is extremely resistant, and, together with tinnitus and other manifestations, may be a source of great annoyance and distress. Surgical measures have been proposed in the treatment of such cases, but the results can not be said to be as brilliant as the character of the therapeutic procedure would justify hope of their being. Some twenty years ago Dr. Adam Politzer, the distinguished Vienna otologist, recommended subcutaneous injections of pilocarpin hydrochlorate in the treatment of certain chronic affections of the middle and the internal ear. A number of years later he began to make the injections directly into the ear through the Eustachian tube, instead of beneath the skin, with good results. Other observers have not reported equal success, but Fischenich[1] summarizes the results of his experience in 120 cases of various forms of disease of the middle ear, attended with catarrh, sclerosis and adhesions. The cases were principally such as had proved unyielding to other methods of treatment, and the impairment of hearing was generally marked. The manipulation, which is preceded and followed by ordinary catheterization, consists in the introduction into the middle ear, through a large aural catheter, of an appropriate elastic catheter with a large central opening, followed by the injection of from 6 or 8 to 10, 12 or 16 drops of a 2 per cent. aqueous solution of pilocarpin hydrochlorate. The injection is immediately followed by vertigo and pain, which, however, soon subside. The number of injections varies between thirty and fifty, in accordance with the severity of the case. The course of treatment is to be concluded by a series of insufflations of air. The resulting improvement often continues after the treatment has been suspended.

THE INJURIOUS CONSTITUENTS OF POTABLE SPIRITS.

Inasmuch as all forms of spirit ordinarily drunk contain ethylic alcohol in common and largely, the varying effects to which they give rise qualitatively must be due to the presence of other substances. Among these are aldehyd, compound ether, fusel oil, and certain volatile basic bodies. These are present—and more particularly the aldehyd—in larger amount in raw than in matured spirit; and it is probably for this reason, among others, that ripe spirit is preferred and that its use is followed by less unpleasant secondary effects. Some experimental observations recently recorded by Brunton and Tunnicliffe,[2] go to confirm the opinion that the especially troublesome effects of intoxication with spirits is due not so much to the ethylic alcohol as, in part at

1. Berliner Klin. Woch., 1900, No. 46, p. 1033.
2. The Lancet, Dec. 8, 1900, p. 1653.

least, to the aldehyd, and especially that known as furfural. This is derived from a class of substances designated pentosanes, which are present in the cellulose of the grain husks used in the preparation of various forms of spirit. It was found experimentally that furfural in active doses causes paralysis of voluntary muscles, and, later, clonic and tonic convulsions, with rapid and irregular breathing—all of a remarkably transient character. From smaller doses ataxia, tremors and twitching, especially of the facial muscles, resulted. In man pain developed at the back of the neck, extending to the occipital region, with a sense of throbbing and pulsation in the vessels of the head, and followed by dull headache for some time. On removal of the aldehyd from the spirits used recovery was much more sudden and accompanied by less marked secondary symptoms. The animals, instead of being restless and evidently uncomfortable, refusing food and exhibiting signs of bad temper, were quiet and soon restored to the normal. These observations emphasize the necessity of ensuring the purity of articles for internal consumption, whether for dietetic or for medicinal purposes, and they raise the question whether it were not preferable, as has often been urged, when alcohol is indicated in the treatment of disease, that a chemically pure article of this, rather than whisky, brandy or wine, should be used.

Medical News.

CALIFORNIA.

The Oakland Medical College's new building will be ready for the reception of students by September 1.

Dr. Paul S. Anderson, Redlands, has been appointed assistant health officer of San Bernardino County, vice Dr. Gayle G. Moseley, resigned.

The Woman's Hospital has been incorporated at Los Angeles, with a capital stock of $20,000. It is to be devoted entirely to the needs of women.

The death-rate of Los Angeles for January was the highest in the records of that city—28.22 per 1000 per annum. Of the 241 deaths, 93 were from diseases of the respiratory system, 178 of the 241 were from other than the Pacific coast states.

The County Hospital, just erected at Riverside at a cost of $20,000, has been found too small for its intended purpose. The county board of supervisors has purchased eight acres of land adjoining the hospital, on which it is proposed to erect two ward-cottages.

FLORIDA.

Dr. Joseph Y. Porter, Key West, state health officer, was elected a member of the legislature.

Dr. Luby S. Smith, quarantine officer at Carrabelle, has been made special agent of the State Board of Health at Arcadia.

Dr. Marcellus McCreary, Pensacola, has been appointed a member of the board of medical examiners for the First Judicial District, vice Dr. Charles B. McKinnon, resigned.

GEORGIA.

The Atlanta Board of Health has requested the city council to define its duties, especially as to the treatment and handling of smallpox cases. The council is also asked either to give the board a free hand or to relieve it of this portion of its duties.

Proprietary medicines are to be inspected by the state commissioner of agriculture, whose decision as to their usefulness and wholesomeness is to be final. The especial qualifications of the chief of agriculture, who is supposably a layman, to pass upon these matters, however, are not clear.

ILLINOIS.

Chicago.

Dr. Andrew McDiarmid has petitioned the circuit court to be allowed to resume his family name of McDermid.

Dr. John S. Marshall, one of the board of three appointed to examine applicants for the position of dentist in the army, reported for duty to the Surgeon-General, February 17.

The mortality for the week ended February 16 was 504, a death-rate per 1000 of 15.46 per annum. Violence caused 30 deaths and disease of the respiratory system 195; 105 persons died who were over the age of 60, and 98 infants under 1 year; 298 males and 206 females died.

The Chicago Lying-In Hospital reports that the demand for rooms is so great that an immediate enlargement of the building is imperative. Plans have been prepared and it is hoped that the work may be started in the spring. During the year just past 974 patients have been treated and 11,129 visits made.

Virtue of Vaccination.—The commissioner of health calls attention to the freedom of the police force from smallpox. No known case of the disease has occurred among members of the force in more than seven years, and this immunity, notwithstanding their frequent exposure, is due solely to the enforcement of vaccination. Similarly as to school children, among an average yearly population of more than 250,000 public and parochial school pupils, there have been only four known cases of smallpox in the last ten years, and these were in children admitted to school on fraudulent certificates of vaccination. As object-lessons of the virtue of vaccination these facts are sufficiently striking.

The Public Health Conditions.—These are still satisfactory. There has been no such increase of throat and lung diseases as might have been anticipated from the meteorologic conditions of the past fortnight and the contagious diseases of childhood—diphtheria, scarlet fever, measles and whooping-cough—are neither usually prevalent nor fatal. The smallpox situation remains unchanged—only 17 new cases during the week. At the close of the previous week there were 44 cases in the Isolation Hospital; 17 were admitted during the week, and 23 discharged, with no death, 38 remaining under treatment. With one exception the cases are mild and promise speedy recovery. The commissioner of health announces that the stock of glycerinated vaccin lymph on hand has ripened sufficiently to make resumption of vaccination safe.

INDIANA.

Dr. Walker Schell, Terre Haute, returned from his European trip, February 13.

Dr. Ernest Moraweck, Tell City, has returned after several years' study in Vienna, and will locate in Louisville, Ky.

A bill has been introduced in the house increasing the salary of the secretary of the State Board of Health from $1200 to $2800, and requiring him to devote his entire time to his official duties.

The Dowie heresy and its prototypes will continue to flourish in Indiana if the senate upholds the action of the committee which recommended the indefinite postponement of a bill providing that a physician must be called in case of sickness of children or dependents, and providing further a penalty in case of the death of a child or other dependent without medical attendance.

IOWA.

Dr. John W. Lauder, Afton, was elected state physician of the Modern Woodmen of America on February 13.

Dr. Fred W. Powers, Reinbeck, has been appointed to the position on the State Board of Health made vacant by the resignation of Dr. Joseph A. Scroggs, Keokuk.

Dr. James F. Presnell, acting assistant-surgeon in the army, formerly a practitioner in Lake View, has been nominated by the President as assistant-surgeon with the rank of captain.

KENTUCKY.

Dr. Marion G. Milan, who has been health officer of Paducah for six years, has resigned.

Dr. J. Hunter Peak, Louisville, who was recently deposed as local pension examiner, has been appointed special medical examiner of the Bureau of Pensions for the District of Kentucky.

Health Needs of Louisville.—Dr. Mavarell K. Allen, health officer of Louisville, states officially that the chief needs of his department are a city chemist, better facilities for protecting child-life against infectious and contagious diseases, proper disinfection of houses, more inspectors and more clerical aid. For these purposes $15,000 is needed for the year. The council has appropriated less than half that amount for the department.

MARYLAND.

Dr. C. Z. Wingard, Funkstown, was struck by a train, near Hagerstown, on February 13, and seriously injured.

Health Reccommendations.—City Health Officer O. W. Ragan, M.D., Hagerstown, recommends that the city council prohibit spitting on the sidewalks, in public conveyances and buildings; the keeping of hogs in the city from May 1 to October 1; the use of slaughter-houses from May 1 to October 1, and the rendering of tallow for the same period, except by improved machinery sanctioned by the sanitary board.

Baltimore.

Dr. Edwin F. Moriarty has been appointed assistant resident physician at the Baltimore University Hospital, vice Dr. Wm. F. Stover, resigned.

The total deaths for the week ended February 16 were 242, pneumonia reaching the unprecedented number of 59. There were also 31 deaths from other diseases of the respiratory system.

Dr. John M. T. Finney was elected president of the Princeton Alumni Association of Baltimore for the ensuing year. President Patton advocated a preparatory medical school at Princeton.

The health department is enforcing a rule that all children recovering from diphtheria, scarlet fever or measles show a certificate from the department before they are allowed to return to school.

The death-rate has been alarming of late, that for the week ended February 2 being greater than any in the last five years. No less than 62 deaths from pneumonia were reported. Consumption caused 36, influenza 10, and the total mortality was 262.

Rohe Memorial.—A Rohé memorial meeting was held by the Medical Society of the College of Physicians and Surgeons, on February 6. A beautiful tribute to Dr. Rohé as man and friend was read by his colleague, Prof. Wm. Simon, and personal reminiscences were given of the deceased physician and alienist by Drs. A. Friedenwald, J. Chambers, T. A. Ashby, and others.

MASSACHUSETTS.

The Board of Health of Fall River has elected Dr. Albert C. Dedrick, chairman, and Dr. Louis V. Cabana, agent.

Dr. Thomas J. Dion has been reappointed a member of the Quincy Board of Health, and Dr. Charles W. Garey has resigned.

Dr. W. J. Campbell has been elected house physician of the Worcester City Hospital, and Dr. Albert Wood, vice-president of the board of trustees.

A petition has been received in the house of representatives to the effect that any person not registered as a physician or surgeon who advertises as a healer of disease shall be punished by a fine of not less than $100 or more than $500 for each offense.

MICHIGAN.

Dr. Frank W. Martin, Portland, was elected state physician of the Modern Woodmen of America, February 14.

Dr. Albert B. Simonson, Calumet, has succeeded Dr. Emmet H. Pomeroy as chief of the medical staff of the Calumet and Hecla Company.

A Dowie Disciple in Kalamazoo, whose children have not been allowed to return to school because they had not been vaccinated, threatens to test the state health laws, and to have a bill introduced in the legislature making vaccination of school children optional with parents.

MISSOURI.

Dr. James W. Smith, Pleasant Hill, has been appointed president of the board of managers of the State Hospital for the Insane, at Fulton.

Lewis County has accepted the new law providing for county boards of health and has named Dr. W. B. Simpson, La Belle, as its medical adviser.

The Stylus has been purchased by, and will be consolidated with, the *Interstate Medical Journal*, and the two publications continued under the latter name. Dr. William Porter, editor of *The Stylus*, will be associated with Drs. W. B. Outten, R. B. H. Gradwohl and O. F. Ball, in the editorial management.

MONTANA.

Northern Pacific R. R. employees have received notification from headquarters at St. Paul to immediately report to their own or the company physician and be vaccinated unless they have been vaccinated within the last four years.

NEBRASKA.

Dr. Ruth M. Wood, Lincoln, has been appointed physician to the Girls' Industrial Home, Milford.

Dr. Hallie D. Ewing, Hastings, has been re-appointed second assistant physician at the Asylum for the Chronic Insane, at that place.

A hospital-corps school for the instruction of privates of the hospital corps of the army, in the duties of their position, is to be established at Fort Crook.

NEW YORK.

The senate has passed the bill abolishing the present State Board of Health, and establishing a single-headed commission.

The Niagara County Medical Society held a special meeting at Lockport, February 9, and adopted resolutions in memory of its lately deceased member, Dr. Henry C. Hill, of Lockport.

Professional Confidence.—A bill has been introduced into the legislature to include nurses within the scope of Sections 834 and 836 of the Code of Civil Procedure, so as to place on them the same restrictions as on physicians, regarding revealing information obtained from patients while serving in a confidential and professional capacity.

New York City.

Dr. Alfred E. Meyer, while at El Paso, Texas, on his way to California, in the capacity of medical adviser and friend of a wealthy banker and his wife, was drugged, assaulted and robbed.

A bust of Dr. Horace Green, a pioneer in the medical profession of the city, was presented to the New York Academy of Medicine, February 7, Dr. D. B. St. John Roosa making the presentation address.

The Platt Pavilion, an addition to the New York Eye and Ear Infirmary, erected to the memory of James N. Platt, through the generosity of the family of the late Justin A. Bliss, will be opened to the public in a few days. It is a fireproof edifice and contains isolated wards for the treatment of contagious ophthalmia.

New Hospital Site.—The New York Red Cross Hospital and Training School has just closed negotiations for a new site for the hospital on Central Park West, near One Hundredth street. The plot measures 99 by 100 feet, and cost $100,000. The plans contemplate the erection of a hospital with accommodations for 100 patients and a nurses' home for about twenty nurses.

Bellevue Hospital.—In the face of the recent presentment of the grand jury, and the demonstration that Bellevue Hospital is maintained at a much lower per-capita rate than other institutions of its kind, the present city administration flatly refuses to give another dollar toward carrying out the much-needed work of reform. Six new nurses, men of middle age, who have had experience in the care of the insane, have been appointed to duty in the insane pavilion, and are said to be receiving $30 each per week.

OHIO.

Dr. Edward C. Brush, Zanesville, has been appointed local surgeon of the Wheeling & Lake Erie R.R.

Dr. F. W. Smedley, who resigned as health officer of Cleves in January last, has been re-elected to that position.

The City Council of Akron has donated $5,000 to aid in ridding the city hospital of its indebtedness of $15,000. When this has been accomplished, a contingent donation of $100,000 will be made by O. C. Barber.

Cincinnati.

To Hold Murderers.—Dr. Harmon, of Longview Asylum, and Prosecutor Hoffheimer, have arranged that all patients at Longview, who are sent to the hospital after being charged with murder, will not be dismissed until the prosecutor has received proper notification.

Divine Healer Bound Over.—Squire Winkler, February 18, refused to dismiss the cases of Frank Brokamp and Mrs. "Dr." Yaeger, charged with practicing medicine without a license. He held that the alleged divine healers do not, according to the plea of their attorney, come under the provisions of the statute relating to osteopaths. He said that, at any rate, osteopaths must be registered, and the defendants had not been. He bound Brokamp over to the grand jury under a $500 bond, and continued "Dr." Yaeger's case for a week. On cross-examination Brokamp was asked by the attorney for the State Medical Board what he knew about anatomy. The healer looked

puzzled and asked the judge what the word anatomy meant. His own attorney attempted to excuse his client on the ground that he was a German and did not understand certain words in the English language. He was then asked how he could diagnose a patient's illness if he could not tell the symptoms of disease. The answer was that the same treatment applied to everything from toothache to heart disease. When asked what the treatment consisted of, the defendant refused to answer, stating that that would be revealing professional secrets, and that every physician in town could cure every ill, if he knew his (the healer's) secrets. On cross examination he admitted that while not healing he acted as gardner to the metaphysical institute.

PENNSYLVANIA.

Dr. **Morris H. Koch,** Kutztown, fractured both arms in a runaway accident, January 30.

Dr. **Harry M. Acheson** was re-elected president of the board of Health of Washington, on February 7.

Changes in Hospital Staff.—The death of Dr. Schneider has necessitated several changes in the staff of the Williamsport Hospital. Dr. Thomas C. Rich has been elected secretary of the board of managers; Dr. William E. Glosser has been placed on the medical staff, and Dr. John A. Klump made abdominal surgeon.

Philadelphia.

The Wills Eye Hospital has added to its surgical staff Drs. John William Pancoast and William L. Zuill.

Dr. **Irvin E. Bennett,** of this city, now on duty with the United States forces in Pekin, has been made a major and surgeon of volunteers.

The Mutual Aid Association of the Philadelphia County Medical Society has received a legacy of $8,110.55 from the late Dr. Albert Fricke.

The Philadelphia Neurological Society, at the close of its February 25 meeting, will tender a reception to Drs. George L. Walton and Walter E. Paul, of Boston, who present a paper on "Astereognosis," before the Society.

The Stille Medical Society, University of Pennsylvania, gave a dinner February 15, in honor of Dr. Richard C. Cabot, of Boston. The following responded to toasts: Drs. John H. Musser, George E. DeSchweinitz and J. H. Penniman.

Appropriations.—The Wills Eye Hospital has made a request of the legislature for the following appropriations: For the completion of the contagious ward, $25,000; for its equipment, $10,000, and for its maintenance for two years, $40,000.

The Philadelphia County Medical Society, at its meeting on February 13, adopted a resolution opposing the antivaccination bill now before the state legislature. The society in this way endorses the compulsory vaccination law now in vogue in this state.

Dr. Keen's Holiday.—Dr. William W. Keen has asked for a leave of absence from Jefferson Medical College, for a year, that he may take a long-needed vacation and rest. He intends to go to St. Paul for the meeting of THE AMERICAN MEDICAL ASSOCIATION, and then spend a year in a leisurely trip around the world, returning to Philadelphia to resume his practice and college work in September, 1902. The rumors that Dr. Keen intends to retire from practice and teaching, he authorizes us to say are without foundation.

TEXAS.

A monument to the late Dr. Francis M. Logsdon, of Beeville, erected by the Woodmen of the World, was unveiled, February 1.

Dr. **John Cunningham,** Ravenna, was elected February 10 to fill the unexpired term, in the house of representatives, of W. W. Riddling, deceased.

Waco **physicians** favor the creation of a state board of health, and have petitioned the legislature to better the health and quarantine laws of the state.

WASHINGTON.

Dr. **William C. Gibson** has been chosen president of the Seattle Board of Health for the ensuing year.

Dr. **Walter F. Morrison,** Spokane, has been appointed physician of Spokane county, vice Dr. Benjamin R. Freeman, term expired.

Seattle's mortality for 1900 is said to have been at the rate of 8.69 per 1000 per annum. The total deaths for the year were 783.

Dr. **N. Fred Essig,** Spokane, has been appointed surgeon for the Kalispell and Cascade divisions of the Great Northern Railway, to succeed Dr. Donald G. Russell.

CANADA.

Dr. **H. G. Barrie,** Toronto, who was in South Africa as the Y. M. C. A. representative, will shortly leave for Shanghai, to do mission work for that organization.

Smallpox in Northern Ontario.—The Provincial Board of Health of Ontario recently held a meeting to consider the outbreak of smallpox along the Canadian Pacific Railway in the northern section of the province, at Sudbury and elsewhere. The disease has appeared in several places, all the way from the "Soo" to Ottawa; and Dr. C. A. Hodgetts, of Toronto, has been sent to Sudbury, where he has discovered ten cases.

Diplomas in Legal Medicine.—The corporation of McGill University met last week and the proposal of the medical faculty to grant diplomas in legal medicine was approved. The diploma will be awarded after a special post-graduate course under certain specified conditions, yet to be made public. The matriculation standard of the medical faculty was also discussed, and it is proposed to raise the standard and make it equivalent to that set by the highest requirements of any province in the Dominion.

The Tuberculin Test.—While the medical men were holding their conference for the purpose of limiting the ravages of tuberculosis in Canada, the cattle men were holding a convention in the same city for the purpose of getting rid of the tuberculin test. In Canada the law requires that a strict test by tuberculin be made on all imported cattle while in quarantine. As a result of this conference with the minister of agriculture, it was agreed that the regulations should be somewhat modified. Toward this end legislation will be introduced during the present session of parliament, abolishing the law which now prohibits selling the hides of tuberculous stock, as scientists agree that there is not the slightest danger from selling these. The minister was opposed to the abolition of the tuberculin test, but some changes may be made regarding the employment of the test in thoroughbred cattle imported for breeding purposes.

Ontario Asylums Report.—The annual report of the asylums for the lunatics and idiots of the province gives the asylum population of Ontario as 5512, with an average of 5137 in daily residence. In 1900, the expenditure for the maintenance in the province was $634,977.42, the per capita cost being $126.26. During the year 1900, 254 patients recovered, an increase of seven over the previous year, and 311 were discharged on probation, the average for the previous ten years being 255. The number of deaths was 269, a decrease of 23, as compared with 1899. Seventy-six per cent. of the population was employed, the percentage for the previous ten years being 75. The revenue from paying patients totaled $78,450.70, nearly $4500 above the average. Dr. Daniel Clarke, superintendent of the Toronto Asylum, contributed to the report a paper in which he combats the theory that insanity is purely a mental disease. He contends that it is always a bodily disease, and that mental or moral perturbations are occasions, not causes, of brain disease.

Health on the Yukon.—On the 15th of January the thermometer registered 68.5 degrees below zero; and the average minimum temperature for nine days was 60 below. Accompanying this intense cold in the Yukon valley was the regular, peculiar white mist, so dense that nothing could be seen more than fifty yards away. An epidemic of dog madness prevailed throughout Dawson for some days in January. As to the cause of this, Dr. McArthur, the medical health officer, is of the opinion that it is genuine rabies, which became prevalent by contagion. It is expected that it will take some months for the disease to become extinct. All the dogs have been impounded and so far no person has been bitten. Typhoid and pneumonia have been very prevalent during the past two months, the latter being of a very severe, acute type. "Typho-pneumonia" has proved very fatal. It is stated that the pneumonia appears first and that at the time of the crisis, abdominal troubles with other marked symptoms of typhoid appear, resulting in a fatal collapse. During the past two months the death-rate has been very high. Several well-known citizens have succumbed to this fatal complication.

Conference on Tuberculosis.—In response to a general call by Lord Minto, the governor-general of Canada, there gathered at Ottawa, on the 14th inst., a large number of the prominent medical men of the Dominion as well as many private citizens. Every province of the Dominion was represented.

The object of the Conference was to place the Canadian Association for the Prevention of Tuberculosis, which was organized at the last meeting of the Canadian Medical Associaton, at Ottawa, on a permanent and established basis. Sir William Hingston, Professor Adami, Sir James Grant and Dr. Roddick took a prominent part in the proceedings. Professor Adami proposed that the Dominion government should have all immigrants examined for the purpose of curtailing the disease in that quarter. Dr. Chown, of Winnipeg, declared that the air of Winnipeg and Manitoba was free from the germs of tuberculosis. Dr. Lafferty, of Calgary, wants the government to erect sanitaria in the northwest, as that district is simply overrun with the tuberculous, fast becoming a menace to the residents. The associaton was organized with the Earl of Minto as honorary president and Sir James Grant as president. The association will petition the dominion parliament, now in session, to grant aid for the building of sanitaria and also to establish a department of public health.

FOREIGN.

The death of Dr. Leslie Ogilvie, physician to the Children's Hospital, Paddington Green, London, is announced.

A bounty on rats is being paid by the Stockholm authorities, as a precaution against bubonic plague.

The Congres de Gynecologie, of France, will meet this year at Nantes, September 23 to 30. Foreign gynecologists are invited to attend.

The Massage Institute connected with the Berlin University has opened a polyclinic for massage treatment of various affections, for patients of all aged.

The Leipsic dermatological clinic has been enlarged and remodelled on the latest ideals, with rooms for Finsen's light treatment, facilities for photographing, etc.

The University of Athens celebrated, December 30, the twenty-fifth anniversary of the professional career of the incumbent of the chair of surgery, Dr. S. Manghinas.

Medallion for Lannelongue.—The friends of Professor Lannelongue of Paris are to present him with a portrait medallion as a souvenir of his services as president of the International Medical Congress last August. It is to be the work of Chaplain, and every one who subscribes twenty francs will receive a bronze copy. The address of the committee having the matter in charge is: 15 rue Soufflot, Paris; Ch. Delagrave, treasurer.

Smallpox Epidemic in Glasgow.—No sooner has Glasgow freed itself from plague than it has been visited by an epidemic of smallpox. On January 25 there were 324 cases in hospital, an increase of 203 on the number a week before. Eleven deaths have occurred. The authorities are actually encouraging revaccination, and in the east end of the town the vaccination stations are often quite thronged. All "contacts" are vigorously followed up and isolated. The accommodation at the fever hospital is being largely increased in case of emergency by the erection of huts.

Plague in India.—According to the *British Medical Journal* of February 9, the number of deaths from plague in the city of Bombay, for January 9, 10, 11, 12, 13, 14 and 15 were 40, 45, 63, 45, 35, 43, and 51 respectively, or 324, as compared with 222 during the preceding week. In the corresponding week of last year, the deaths from this disease numbered 428. The plague is found in nearly every district of the city. In Calcutta 50 to 60 cases occur weekly. The government of Madras has granted 150,000 rupees toward the expense of preventing plague. During the week ending January 15, in Mysore Province, the cases of plague numbered 419, a marked increase over preceding records. The mortality in Bombay City is now sufficient to justify the present being called the fifth epidemic of the disease since 1896.

Plague Infected Ship at Bristol, England.—On January 20 a steamer arrived at Bristol, from Smyrna, Asiar Minor, with a cargo of grain. No cases of illness had occurred, but it was reported that six dead rats had been found in the grain and burned. Another was found and examined bacteriologically, with the result that bacilli were found. Still another rat was sent to Dr. Klein, who found by inoculations that the disease of which the rats had died was plague. By this time most of the cargo had been discharged. Every precaution was then taken. The ship was kept in the floating harbor and every portion thoroughly disinfected. Every one of the seventy-seven laborers employed in removing the cargo has been kept under observation and visited daily. So far no case of illness has occurred.

LONDON.

Outbreak of Plague on a Steamer at Hull.

The disappearance of the Glasgow outbreak of plague has been followed by other attempts of the disease to obtain a footing in this country, but so far unsuccessful. A steamer arrived at Hull on January 10, as previously noted in THE JOURNAL, from Alexandria, with the body of one of the crew who had died on the voyage. The body was removed to the city mortuary and buried on January 13, no suspicions being aroused. On January 12, however, two of the crew were taken ill. The medical officer of health and another doctor, who saw them on the following day, diagnosed influenza complicated by pneumonia. The patients died on January 15 and 16, respectively. Bacteriologic examination showed that they had suffered from pneumonic plague. Meanwhile two firemen had become ill, on January 14, and were removed to the hospital, and four other members of the crew were removed for isolation. Work was suspended on the vessel and it was removed to a mooring station and thoroughly disinfected. Seven more of the crew were removed to the hospital for isolation. One of the isolated men became ill and died on January 22. On January 21 the watchman of the ship, who had rendered assistance to the sick members of the crew, was taken ill and removed to the hospital. He died on January 27. The doctor who had seen the sick crew and who had assisted at the necropsies became ill on January 18 and was removed to the hospital on January 24. Bacteriologic examination of his sputum showed that he was suffering from pneumonic plague. His condition was critical for some days, but he is now recovering. In no case were enlarged glands detected; all were of the pneumonic form of plague. Altogether seven deaths have taken place, and the bodies have been cremated. The nurses and all others who have been exposed to infection have been treated with Haffkine's prophylactic serum. The names and addresses of all persons who have been in contact with or in any way associated with the vessel have been taken and their homes visited daily. Apparently all danger of the disease spreading has passed.

Intraperitoneal Rupture of Ovarian Cysts.

At the Edinburgh Obstetrical Society, Dr. Haultain recently read a paper on this subject, with special reference to operative treatment. He remarked that in the majority of cases rupture was apparently unassociated with discomfort, and therefore only in those cases in which the cyst was of sufficient size to have attracted attention could a diagnosis be made. The absence of symptoms was doubtless due to the innocuous contents of the cyst and their slow escape. In the greater proportion of the recorded cases severe and dangerous symptoms supervened. Palm, in his collected statistics of 25 cases, recorded 18 deaths: 3 from collapse, 6 from acute peritonitis, 3 from chronic peritonitis, and 6 from protracted fever. Nephen found that 65 out of 155 cases terminated fatally. In these instances the contents of the cysts must have been intensely irritating, and in many septic; in some death resulted from hemorrhage. The causes of rupture were numerous—violence, morbid processes in the cyst wall, in some cases from torsion of the pedicle, and intracystic hemorrhage. Gelatinous contents were slowly absorbed by the peritoneum, and might continue to distend the abdomen. More fluid contents—especially those of cysts of the broad ligament—are absorbed and the cyst may become permanently obliterated. In other cases the tumor redistends or secondary cysts take on active growth. The contents might be so irritative as to cause peritonitis and adhesions so widespread as to be an insuperable barrier to removal. The treatment of ruptured cysts consists in removal of the cysts as soon as possible. In a certain proportion of cases spontaneous cure occurs, but as delay might allow widespread adhesions to form, early operation is advisable. In operating, the surgeon is liable to be misled by the gush of fluid when he opens the peritoneum and to think that he has entered the cyst. An attempt would then be made to separate the cyst wall from suspected adhesions to the abdominal parietes, resulting in stripping off the parietal peritoneum. In these cases it is well to enlarge the opening and to introduce the hand into the cavity before attempting the separation of the cyst wall.

Oophorectomy for Recurrent Mammary Cancer.

At the Clinical Society, Mr. Stanley Boyd recently showed a woman, aged 31, on whom he had performed this operation. In 1898 the left breast was removed for carcinoma. In 1900 operation for recurrence was contemplated and abandoned. In August, 1900, the patient was emaciated; there were recurrence in the scar, two outlying subcutaneous nodules, considerable enlargement of the left supraclavicular and substerno-

mastoid glands, which were rather fixed, and many large hard glands in the right axilla and a few in the neck. The left vocal cord was paralyzed and the patient had great difficulty in swallowing fluids. Double oöphorectomy was performed. Improvement took place rapidly from the day of the operation. On September 8 the nodules and glands, except one beneath the sternomastoid, had disappeared. On December 4 the voice and power of swallowing were normal and the patient had gained 21 pounds in weight.

Treatment of Rodent Ulcer by the X-Rays.

At the Hunterian Society, Dr. Sequeira showed three patients who had suffered from rodent ulcer of the face, for thirteen, eight and seven years, respectively. They were treated for ten minutes a day with the *x*-rays. The current employed was from 3 to 4 amperes, with a ten-inch spark. The lamp was placed six inches from the affected part, the normal skin being protected with lead foil. The ulcers healed entirely, and finally the raised growing edge also disappeared. Dr. Sequeira strongly recommends this treatment in all cases of rodent ulcer in which complete removal with the knife is impossible. It is too early to say anything of recurrence, but even if the treatment has to be repeated the patients are much better off than with progressive ulceration. Dr. Sequeira believes that so short an exposure as he has given, limited to the growth itself, is not likely to cause the serious sloughing which occasionally follows prolonged exposures. These results are interesting in connection with the equally successful results obtained from the *x*-ray by Drs. Knox and Pusey in lupus (THE JOURNAL, Nov. 10, 1900, p. 1211; Dec. 8, 1900, p. 1476).

Chronic Interstitial Nephritis in a Girl Aged Seven.

At the Society for the Study of Disease in Children, Dr. Guthrie related this case. A thin, stunted child with marked bronzing of the skin was admitted to the hospital January 6, on account of severe headaches, accompanied by vomiting, amaurosis and vertigo, which had occurred every day for two months. She never had scarlatina nor dropsy. The left ventricle was hypertrophied, the pulse of extremely high tension and the radial and brachial arteries were thickened. The urine amounted to from two to three pints daily and gave a specific gravity of 1006 to 1010. It contained albumin one-twelfth to one-half, and a few granular and hyaline casts. After admission the symptoms continued. She wasted rapidly and the heart enlarged. On the 17th she had two fits with loss of consciousness, rigidity and convulsions almost confined to the right side. On the 30th she had three more fits. During the eclamptic period the urine was fourteen to eighteen ounces, but in the intervals it rose to 106 ounces a day. On February 4 she became strange in manner. She gradually became comatose and died on the 7th. She was never dropsical. At the necropsy the heart was found hypertrophied and dilated. There were two large hemorrhages in the right cerebral hemisphere. The arteries generally were thickened and the kidneys showed marked interstitial nephritis.

Interstitial nephritis is very rare in children. Dr. Guthrie found records of eight similar cases between the ages of 5 and 14. The symptoms were precisely similar to those in adults.

Correspondence.

Diagnosis of Rabies.

PHILADELPHIA, Feb. 11, 1901.

To the Editor:—In THE JOURNAL for February 9, page 401, you give a report of the meeting of the Philadelphia Pathological Society for January 10, which includes a summary of the paper on "The Rapid Diagnosis of Rabies," by ourselves, and in your "Current Literature" you refer to this in place of an abstract of the paper. The report sent to you is so hopelessly muddled and inaccurate that we must beg space to correct it. Your correspondent has failed not only to give the facts as we presented them, but also to grasp the primary object of our work, which was an examination of the claims made by Van Gehuchten and Nélis as to the changes which occur in the intervertebral and plexiform ganglia in cases of rabies, and a comparison of their findings with those of Babès in the medulla oblongata, to which he has given the name "rabic tubercle." The method given by your correspondent as that followed by us is a hopeless jumble of two that were described. We did not use "Weigert's methylene blue" on any occasion, not knowing the preparation. We stained our sections according to Nissl's method, and with hematoxylin and eosin, the latter of which we found preferable for general use. We have examined the ganglia in twenty-eight cases of rabies, and in all of them found the lesions described by Van Gehuchten and Nélis, and believed by them to be the specific lesion of the disease. In twenty-one of these we examined also the medulla after the method of Babès, and in ten found the "rabic tubercle" described by him. We conclude, therefore, that while the method of Babès may give great assistance in some cases where the ganglia are not obtainable, for general use the procedure of Van Gehuchten and Nélis is preferable and more reliable, the changes described by them having a positive diagnostic value.

In the postmortem diagnosis of the case of the child detailed, cultures were made from the rabbits which succumbed to inoculation, carried through four generations, for the purpose of excluding accidental infections. The sterility of our cultures enabled us to say with absolute certainty that the animals did not die of any known bacterial disease. As the micro-organism of rabies has not yet been discovered and never cultivated, the results obtained are regarded as strong evidence that the cause of death was rabies. It was this conclusion we drew from our failure to obtain growths in our culture-tubes, not "that the micro-organism of this disease is different from that of any other type." Very sincerely,

MAZYCK P. RAVENEL, M.D.
L. J. MCCARTHY, M.D.

Result of Governor's Insults to Medical Profession.

DENVER, COLO, Jan. 31, 1901.

To the Editor:—THE JOURNAL has shown such an intelligent appreciation of the character and official acts of Charles S. Thomas, late governor of Colorado, that I feel sure you will record with some degree of satisfaction a few facts in connection with his recent failure to secure election to the United States Senate.

As long ago as last summer the medical profession of Colorado was actively awake to its duty in connection with Mr. Thomas's senatorial candidacy, and without regard to party affiliation, practically every regular physician in the state took an interest in this aspect of our political campaign. Early recognizing the probability of democratic control of the general assembly, physicians made it their business to work at primaries and in conventions for the nomination only of such democratic or "fusion" legislative candidates as would promise to oppose the ambitions of Governor Thomas. When we consider that the governor at that time was the supreme head of about as perfect a political machine as this state has ever known, the difficulties of our task may be imagined.

But the election occurred. The fusionist or democratic control of the general assembly was even by a greater majority than they themselves had anticipated. The governor felt perfectly secure of the senatorial nomination from the "fusion" caucus. There never was a time at which he claimed less than within four votes of enough to nominate. Those four votes it was an impossibility for him to secure. No arguments, no political influence, no improper proposals could induce even so small a number of the opposition to come to his support. The members who had pledged themselves to the doctors of their various districts stood by their pledges and the ambition of Governor Thomas's life ended in a tearful withdrawal of his name.

The medical profession of Colorado congratulates itself that the gratuitous and malevolent insults heaped upon it two years ago in the remarkable veto message of the governor, have been resented in the only manner that he—as a politician—could appreciate. When scheming politicians realize that physicians propose to assert their rights and privileges as citizens in an effective manner, we may be treated with more courtesy as an organized profession. Very respectfully,

WILLIAM P. MUNN,
President Colorado State Medical Society.

[The above shows what physicians can do if they work together.—ED.]

Deaths and Obituaries.

Samuel C. Busey, M.D., University of Pennsylvania, 1848, died at his home in Washington, D. C., February 12, aged 71. He was born in Maryland and began his medical studies with Dr. Hezekiah Magruder in Georgetown. After his graduation, he returned to Washington, where he engaged in active practice. He worked his way to the front at once. He served the Medical Society of the District of Columbia six times as its president, was professor of materia medica and diseases of children in Georgetown Medical School, and was one of the founders of the Children's and Garfield hospitals. He was a member of THE AMERICAN MEDICAL ASSOCIATION, took especial interest in municipal sanitation and his researches on this subject were painstaking and his findings valuable. On the fiftieth anniversary of his graduation in medicine, Dr. Busey was tendered a banquet by the local profession. Several years ago he fractured his thigh by a fall down an elevator shaft and never regained strength. During the last three years he has devoted his attention to literature and especially that relating to the history of the District of Columbia.

Fred J. Hodges, M.D., Chicago Medical College, 1888, died February 18, at the age of 36. After his graduation he practiced medicine a few years in Chicago, later in Anderson, Ind., and for the last few years had been associated with his brother-in-law, Dr. Rinehart, at Ashland, Wis. Six weeks ago, in performing an operation, Dr. Hodges was poisoned through an abrasion on his hands.

Gustavus Scott Franklin, M.D., College of Physicians and Surgeons, New York, 1862, at one time a member of the Ohio State Medical Society and of THE AMERICAN MEDICAL ASSOCIATION, died at his home in Chillicothe, Ohio. The Ross County Medical Society, of which he was one of the founders, passed resolutions of regret and sympathy at a special meeting held February 8.

Curtiss H. Osborne, M.D., Yale University, New Haven, Conn., 1877, a member of THE AMERICAN MEDICAL ASSOCIATION, died at his home in Pasadena, Cal. The Pasadena Medical Society attended the funeral in a body, and passed resolutions expressive of regret and sympathy.

Julius A. Mayes, M.D., Medical College of the State of South Carolina, Charleston, 1844, an expert botanist, and at one time president of the State Medical Association, died at his home in Mayesville, S.C., February 9, after a short illness, aged 78.

Edwin S. Miller, M.D., University of Pennsylvania, Philadelphia, 1878, a prominent physician of Altoona, Pa., and a member of THE AMERICAN MEDICAL ASSOCIATION, died from paralysis, at his home in Altoona, February 10, aged 45.

Augusta A. Steadman, M.D., Woman's Medical College, New York, 1881, formerly a practitioner in Taunton, Mass., but for the last ten years a resident of Amsterdam, N. Y., died at her home in that city, February 1, from pneumonia, aged 50.

Aaron T. Shallenberger, M.D., Jefferson Medical College, Philadelphia, 1846, who had practiced in the Beaver Valley for more than fifty years, died February 6, at his home in Rochester, Pa., after an illness for five weeks, aged 75.

Julian N. Parker, M.D., Yale University, New Haven, Conn., 1867, who had practiced for more than thirty years in South Manchester, Conn., died at his home in that place after a protracted illness, February 7, aged 58.

Charles H. Poucher, M.D., Medical College of Indiana, Indianapolis, 1893, formerly superintendent of the Indianapolis City Hospital, died from the effects of prussic acid poisoning, at Swanton, Neb., February 11, aged 32.

Peter Moir Barclay, M.D., New York University, 1854, a native of Aberdeen, Scotland, and for nearly half a century a practitioner of medicine in Newburg, N. Y., died February 10, at his home in that city, aged 66.

E. C. Frierson, M.D., College of Physicians and Surgeons, Baltimore, M.D., 1880, accidentally shot himself while cleaning a gun, at his home in Anderson, S. C., February 8; he died almost instantly, aged 40.

Samuel Brown Morrison, M.D., University of Virginia, Charlottesville, 1855, a surgeon in the Confederate service, died at his home, Rockbridge Baths, Va., February 4, from paralysis, aged 72.

Edward F. Davis, M.D., Miami Medical College, Cincinnati, 1872, who practiced for many years at Cleves, Ohio, died after a long period of invalidism at Hamilton, Ohio, February 11, aged 59.

Dana C. Highriter, M.D., College of Physicians and Surgeons, Baltimore, Md., 1887, died from rheumatic fever, after a short illness, at his home in Fulton, N. Y., February 9, aged 35.

Fletcher McFarland, M.D., Rush Medical College, Chicago, 1870, died recently at Jacksonville, Ill., aged 52. He was assistant physician at Oak Lawn until 1882, when he became blind.

William W. Alderson, M.D., College of Physicians and Surgeons, Baltimore, 1894, died from consumption at the home of his parents near Alderson, W. Va., January 24, aged 27.

Daniel Scott Boyle, M.D., University of Maryland, Baltimore, 1860, a surgeon in the Confederate Service during the Civil War, died at Westminster, Md., February 4, aged 67.

Leonard Kelly, Jr., M.D., Medical College of the State of South Carolina, Charleston, 1898, died after a prolonged illness at his home in Olyphant, Pa., February 10, aged 25.

Flavel H. Van Eaton, M.D., Missouri Medical College, St. Louis, 1858, died at his home in Olympia, Wash., February 2, after an illness of two years, from rheumatism.

Lucy M. Gardner, M.D., College of Physicians and Surgeons, Keokuk, Iowa, 1896, of Quincy, Ill., died from peritonitis, in La Porte, Texas, February 6, aged 42.

Michael G. Cunningham, M.D., College of Physicians and Surgeons, New York, 1883, died at his home in Binghamton, N. Y., February 11, from la grippe, aged 44.

Charles S. Jenne, M.D., University of Vermont, Burlington, 1887, died at his home in Westford, Vt., February 9, after a week's illness, from pneumonia, aged 35.

James T. Perkins, M.D., University of Maryland, Baltimore, 1877, died at his home in Springfield, Md., after a prolonged illness, February 6, aged 47.

Henry S. Mellinger, M.D., Jefferson Medical College, Philadelphia, 1845, died at his home in Cresswell, Pa., from apoplexy, February 8, aged 79.

Nathaniel B. Boileau, M.D., University of Pennsylvania, 1858, coroner of Hunterdon County, died suddenly at his home in Jutland, N. J., February 11.

William E. Boswell, M.D., Memphis (Tenn.) Medical College, 1873, died from consumption, at his home in Union City, Tenn., February 7.

William H. Edsall, M.D., Albany Medical College, Albany, N. Y., 1877, of Highland Falls, N. Y., died of pneumonia, February 9, aged 49.

Benjamin W. Tingley, M.D., Dartmouth Medical College, Hanover, N. H., died at his home in Bellingham, Mass., February 4, aged 80.

Andrew P. Glanden, M.D., Jefferson Medical College, Philadelphia, 1865, of Newport, N. J., died from paralysis, February 9.

John T. Bingham, M.D., University of Nashville, Tenn., 1860, died suddenly, at his home near Isam, Tenn., February 8.

John Sistrunk, M.D., New York University, 1858, died at his home near Society Hill, Ala., February 5.

John H. Leary, M.D., Bellevue Medical College, New York, died in Providence, R.I., February 10.

C. L. Brock, M.D., died January 24, at his home in Sheldon, Iowa, aged 83 years.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment will be answered in these columns.]

Normal Salt Solution in Pleurisy with Effusion.

Dr. John A. Robison states that normal salt solution injected into the pleural cavity after removal of the fluid or when the fluid is loaded with fibrin enhances the tendency to absorption. The points he emphasizes are: 1, it increases osmosis of the fluid into the blood-vessels; 2, it increases the activity of the absorbent lymphatics; 3, it acts as a solvent and an antiseptic; 4, the heat of the injection has a stimulating influence on the pleural vasomotor nerves, dilating the capillaries and hastening the blood current.

Treatment of Severe Cases of Lumbago.

Dr. R. S. Bernice, in *Med. Record*, gives the following treatment of lumbago:

R.	Ammonii chloridi	gr. xx	1 33
	Ammonii carbonatis	gr. v	30

M. Sig.: At one dose, well diluted in water.

Or,

R.	Ammonii chloridi	ʒiii	12
	Liq. hydrarg. perchloridi	ʒss	16
	Spts. chloroformi	ʒss	16
	Infusi gentianæ comp. q. s. ad	ʒvi	192

M. Sig.: One tablespoonful in water three times a day.

The dose of ammonium chlorid in either of these prescriptions approaches the maximum dose.

Formaldehyde in Diphtheria.

The following combination containing formaldehyde has been highly recommended in the form of a spray as a disinfectant to the throat in diphtheria:

R.	Sol. formaldehyde (0.25 per cent.)	ʒi	32
	Potassii chloratis	ʒii	8
	Acidi borici	ʒi	4
	Glycerini	ʒss	16
	Aquæ q. s. ad	ʒiv	128

M. Sig.: Use as a spray to the membrane deposits in the throat.

Taylor, in *Brit. Med. Jour.*, gives the following directions for treatment of diphtheria: A full dose of mild chlorid of mercury; swab the throat with the tincture of iodin; inhale the vapors of the tincture of iodin for five minutes at a time, using the following combination:

	Tinct. iodi	ʒi	4
	Aq. destil, q. s. ad	ʒiv	128

M. Sig.: Use as an inhalation by heating over an alcohol lamp and repeat in half an hour if necessary. He recommended also, the administration of quinin, tincture of alcohol when necessary, beef tea and milk.

Treatment of Acute Catarrhal Rhinitis.

Dr. G. C. Stout, in *Ther. Gazette*, states that the treatment should be divided into prophylactic, abortive and curative. Prophylaxis embraces rational clothing, avoidance of draughts, care of the digestive functions and maintaining muscular tone. As a preventive measure a brisk dry massage of the body and limbs morning and evening is excellent. A laxative of mild chlorid of mercury and sodium bicarbonate, followed by strychnin sulphate in one-thirtieth grain doses three times a day, hot drinks at bed-time after a hot foot-bath; then covering up well in bed so as to produce general diaphoresis.

Treatment of a well-pronounced attack consists in giving a saline cathartic, and for the free discharge from the nose:

R.	Morphinæ sulphatis	gr. 1/32	0020
	Strychninæ sulphatis	gr. 1/95	0007
	Atropinæ sulphatis	gr. 1/150	0004
	Acidi arsenosi	gr. 1/100	0006
	Aconitinæ	gr. 1/1000	00006

M. Sig.: One such tablet two or three times a day according to symptoms. And locally:

R.	Cocainæ hydrochloratis	gr. x	66
	Acidi borici	gr. iv	25
	Aquæ destil. q. s. ad	ʒii	64

M. Sig.: Spray into the nose when the secretion from the nose is excessive and the breathing space narrowed. After five minutes it is to be followed by a spray of:

R.	Atropin	gr. x	66
	Aquæ destil. q. s. ad	ʒi	32

M. Sig.: Use as a spray once a day to the nares and allow to remain for five minutes and then gently blow the nose.

This should in turn be followed by an oily spray as a protective:

R.	Menthol	gr. v	32
	Liq. petrolati	ʒi	32

M. Sig.: Spray into the nares once a day.

Pharyngitis or laryngitis, if present will be relieved by the following:

R.	Olei eucalypti	m. ii	12
	Zinci sulphatis	gr. x	66
	Antipyrini	gr. xl	2 66
	Aquæ destil.	ʒii	64

M. Sig.: Spray into the pharynx and inhale every two or three hours.

Give internally the following tablet:

R.	Pulv. opii	gr. ¼ to ½	015-03
	Camphoræ	gr. i	06
	Ammonii carbonatis	gr. i-iii	06-18

M. Sig.: One such capsule every three hours.

[The following powder may be used to great advantage instead of the spray containing cocain, but should always be prescribed and given out by the physician himself on account of the danger of contracting the cocain habit:

R.	Cocainæ hydrochloratis	gr. v	32
	Sodii bicarbonatis	gr. iv	25
	Sodii boratis	gr. iv	25
	Iodol	ʒi	4
	Sacchari lactis q. s. ad	ʒiii	12

M. Sig.: A small amount to be used as an insufflation into the nares once or twice daily if necessary to relieve the congestion of the swollen turbinated bodies.

The following is very often recommended for cold in the head, although rather heterogeneous in character:

R.	Quininæ hydrobromatis	gr. xx	1 33
	Podophyllin	gr. ii	12
	Aloinæ	gr. ii	12
	Atropinæ sulphatis	gr. 1/25	0025
	Strychninæ sulphatis	gr. 1/6	01
	Sodii bicarbonatis	gr. lxxx	5 33

M. Ft. cap. No. xx. Sig.: One capsule every two hours. —ED.]

Treatment of Bronchitis Accompanying Influenza.

Atkinson, in "Amer. Text-book of Ther.," recommends the following if the catarrhal condition is such as to produce paroxysms of coughing:

R.	Morphinæ sulphatis	gr. ss	03
	Syrupi scillæ	ʒii	8
	Syrupi lactucarii	ʒss	16
	Aquæ	ʒvi	24

M. Sig.: One teaspoonful every three or four hours.

If nausea be present and the cough troublesome, but the bronchitis not severe, the following is advised:

R.	Morphinæ sulphatis	gr. ss	03
	Acidi hydrocyanici dil.	m. viii	50
	Spts. chloroformi	ʒiss	6
	Aq. menthæ viridis q. s. ad	ʒiss	48

M. Sig.: One teaspoonful every three or four hours.

If the bronchitis is pronounced, he recommends more stimulating agents and prescribes the following:

R.	Ammonii chloridi	ʒi	4
	Mist. glycyrrhizæ comp.	ʒvi	192

M. Sig.: One tablespoonful every three or four hours in water.

Protargol in Acute Gonorrhea.

Belfield, in *Progressive Medicine*, recommends the following in the acute stage:

R.	Hydrastis muriatis	gr. xv	1
	Protargol	gr. xv	1
	Glycerini	ʒiss	6
	Aquæ destil. q. s. ad	ʒiii	96

M. Sig.: Use as an injection four times a day.

Acute Gout.

He also recommends lithium hippurate in treatment of acute gout, prescribed in the following manner:

R.	Lithii hippuratis	℥i	4
	Syrupi aurantii	℥i	32
	Aquæ q. s. ad	℥vi	192

M. Sig.: One tablespoonful in water at bed-time; and as a local analgesic in acute gout he quotes the formula of Sir Dyce Duckworth as a local analgesic:

R.	Atrophinæ	gr. ii	12
	Morphinæ hydrochloratis	gr. xv	1
	Acidi oleici	℥i	32

M. Ft. linimentum. Sig.: To be painted over the painful joint with a large camel's hair brush, and carded cotton to be superimposed, with a towel bandage.

Injections of Iodin Compounds in Syphilis.

Lang, of Vienna, in *Internat. Med. Mag.*, states that in those cases where syphilities can not tolerate the iodids by the stomach he administers them per rectum, or when conditions are unfavorable for administration in this way, he resorts to subcutaneous injections as follows:

R.	Potassii iodidi	℥i	32
	Codeinæ hydrochlor.	gr. vii	42
	Aquæ destil.	℥i	32

M. Sig.: Inject from fifteen to forty-five drops daily. The codein renders the injection less painful and does not retard the rapidity of absorption. In other cases he used the following:

R.	Iodoformi	℥i	4
	Vaselini (liquid)	℥iss	6

M. Sig.: Inject seven drops subcutaneously every day, or every other day.

Treatment of Lupus.

Unna, in *Brit. Med. Jour.*, recommends the following paste in treatment of lupus:

R.	Acidi salicylici		
	Solutionis antimonii chloridi ää	℥i	4
	Creosoti		
	Ext. cannabis indicæ ää	℥ii	8
	Lanolini	℥iv	16

M. Sig.: Apply locally to the afflicted part.

The solution of antimony is an unofficial preparation and is a powerful caustic and a destroyer of bacilli. The creosote and cannabis indicæ will relieve the pain. The salicylic acid aids penetration.

Treatment of Sciatica.

Hogge, as noted in the *Internat. Med. Mag.*, states that he has good success in the treatment of sciatica with the following injection in a limited number of cases:

R.	Salophen	℥ii	8
	Sodii bicarb.	℥i	4
	Aq. destil. q. s. ad	℥ii	64

M. Sig. Inject two drams into the gluteal region every other day.

He states that he kept the patients in bed until the fifteenth injection was given and that all symptoms were relieved after the thirtieth injection.

Treatment of Typhoid Fever.

Dr. William Ewart, in *The Lancet*, recommends very highly the following:

R.	Sol. hydrarg. chloridi corros. (B.P.)	m. xx	1 33
	Tinct. ferri chloridi	m. xv	1
	Syrupi aurantii	℥i	4
	Aquæ destil.	℥i	32

M. Sig.: At one dose, to be repeated every six hours for ten days.

He claims with this combination to produce a rapid amelioration of the signs and symptoms, such as cleansing of the tongue, clearing of complexion and a return of the appetite, as well as the checking of the diarrhea when present. He claims that the iron acts splendidly as a local application to the ulcers and as a hemostatic, while the mercury exerts its influence upon the hepatic and lymphatic systems, as well as a disinfectant to the alimentary tract.

According to the Brit. Pharmacopeia, the mercuric solution in the above prescription contains 1/16 gr. of corrosive sublimate to each dram. Therefore each twenty minims contains 1/48 of a grain of the mercuric chlorid.

Medicolegal.

Consciousness Presumed.—The Court of Errors and Appeals of New Jersey holds, in the case of State vs. Hill, that the law always presumes a man to be conscious and sane, and if the contrary exists, thereby defeating the natural presumption, it must be shown by the party who alleges it.

Antiseptic Cotton a Medicinal Preparation.—The Board of United States General Appraisers at New York holds that merchandise consisting of a foundation of cotton batting with one surface thereof treated with an antiseptic preparation, the chief component material being cotton, is a medicinal preparation, dutiable as such under the tariff act, and not as a manufacture of cotton.

Right of Recovery for Operation.—It appeared at a trial term of the Supreme Court of New York, Kings County, in the case of MacEvitt vs. Maass, that the plaintiff, a physician and surgeon, was called in by the defendant to treat his wife. He made an examination of her, and informed the defendant that a surgical operation was necessary. They entered into an agreement that the plaintiff should perform it for $75. The trouble was an internal one somewhere in the abdomen. The plaintiff testified that a day or two later he made another examination of the patient and found conditions which were entirely new to him, and foreign to the surgical operation which he had proposed; that the first diagnosis was entirely wrong; that her condition was of much greater gravity than had been supposed from the first diagnosis; that the operation first mentioned was entirely unnecessary; that an entirely different surgical operation, but in the same region, was necessary; that it was one which would jeopardize the patient's life, whereas the first one mentioned would not have done so; and that he substantially informed the defendant of all this. But he did not say that the new operation was worth more or less than the one first proposed, or that he would charge for it more or less than the sum which had been agreed on. In fine, nothing was said by either on the subject of compensation for the new operation. The defendant simply assented to the plaintiff performing it. It was then left to the jury to find what the facts were, and to say whether the agreement for a compensation of $75 was superseded, and they gave the plaintiff a verdict for $225. This meets the approval of the court, which holds that the legal conclusion was that the defendant in assenting to the performance by the plaintiff of the new operation must necessarily have understood that the agreement previously made could not be carried out and was at an end, and that he was to pay for the new services what they should be reasonably worth. If it had turned out on the second examination that the operation first mentioned was not necessary, and that a different and only trifling operation was necessary, and the plaintiff had informed the defendant thereof, the plaintiff could not afterwards have claimed that $75 was agreed upon for that operation, although it was worth only one-third of that amount. The law would be that both parties necessarily understood that the first agreement was no longer in effect, though that was not in so many words said. Moreover, the testimony of the plaintiff and of the surgeons who assisted him in the operation, concerning the ailment of the patient and the particulars of the operation, having been excluded, as privileged, the court holds that their testimony as experts in respect to the value of the plaintiff's services could not be objected to on the ground that as the nature and particulars of the surgical operation had not been given in evidence, there was no basis for such testimony. There was in evidence that a capital surgical operation was performed, of the time it took, and of the number of visits the plaintiff made to the patient before and after it, and the statute having excluded the particulars as to what the operation really was, the court holds that such evidence of value by the surgeons who saw them, being the best evidence which the nature of the case admitted of, must be held admissible.

May Erect an Individual Home for a Lunatic.—The Court of Appeals of Kentucky gives it sanction, in the case of Cantrill vs. Cecil, to the erection, under certain circumstances, of an individual home for an adjudged lunatic. Here was one

who had an estate of $93.000 held in trust for her life by a brother, the principal to be encroached upon in case of imperious necessity only. After having been confined in public and private institutions for the insane, she was removed to the residence of a sister, who, having been advised that it was essential to do so, had erected, with the consent of the committee, but without waiting for that of the chancellor, an addition to her dwelling, at an expense of $6000, so that she could give her a sister's care, and the other could have her own "home," although she had to be confined to her rooms. The sister claimed that this addition added nothing to the value of property, and sought reimbursement therefor. The court holds that she was entitled to maintain a suit for same, but was not entitled to encroach on the principal of the estate, nor, perhaps, on the profits accumulated prior to the expenditure in question. It says that if this arrangement ought to continue as the best possible one under all the circumstances, then the ample income of the estate ought to be made available to pay for the structure which alone made it possible to continue it. Nor does it consider that the expenditure in dispute was an investment in real estate, and therefore in contravention of the terms of the deed of trust. If, in erecting the house for the invalid, there was any permanent improvement of the sister's property, the chancellor might, as matter of common justice and right, it says, charge the sister therewith, and might even provide for the contingency of the patient's immediate or early death, or the event of her ceasing to occupy the house, or of her permanent recovery of mind and health, if it should be supposed the happening of these contingencies might pecuniarily benefit the sister. But, after all, the court asks, why should the unfortunate woman be committed to private or public mad houses because there might result, perchance, some gain to her benefactor or custodian? The supreme consideration was her health, comfort and security.

Use of Boric Acid as Milk Preservative.—Section 4989 and 4990 of the Iowa Code provide that if any person shall sell any adulterated milk he shall be fined, and that the addition of water or any other substance or thing to milk is an adulteration. Construed literally, the trial judge in the case of State vs. Schlenker held that this enactment was unconstitutional: that the evident intent of the legislature was to prohibit sales of anything that would operate as a fraud upon the buyer or prove deleterious to his health, and that, as the defendant was guilty of no fraud and the adulteration was harmless, he had not violated the law, he having put about one-half ounce of boric acid in ten gallons of milk as a preservative, and told a number of customers what he was doing. But with these conclusions the Supreme Court of Iowa does not agree. It holds the statute constitutional and the definition of the term "adulteration" valid and binding. While it may be true, as a general proposition, that the legislature has no power to forbid the sale, without deceit or fraud, of a harmless and wholesome article of food, the supreme court declares that it is also true that in virtue of the police power it may pass such laws as are, or may reasonably appear to be, necessary for the health, comfort, and safety of the people. Almost every police regulation affects, to a greater or less extent, some property right; but these rights are subject to such reasonable limitations in their enjoyment as will prevent them from being injurious, and to such reasonable regulations as the legislature, under the constitution, may deem necessary and expedient. Courts will not interfere, as a rule, unless there is a plain excess or usurpation of power, and in case of doubt it should be solved in favor of the power of the legislature to make the enactment. It may be conceded that the milk sold by the defendant was not harmful to the health of those who used it; but it is certainly dangerous to the public to permit milkmen and those dealing in milk to adulterate it in such manner as to change its constituent properties. So it holds that it was not enough as a defense to show that the defendant did not intend to defraud, or that the milk he sold was wholesome. If that were enough, almost any law intended to protect the public health and safety might be overthrown. It is enough that adulteration such as prescribed by the statute may defraud or prove deleterious to the public health or comfort. The legislature may well determine that the adulteration of milk tends to facilitate vicious practices, and that it ought to be prohibited. Criminal intent not being an essential element of the offense described in the statute, it need not be shown in order to justify a conviction.

Miscellany.

Carcinoma in Sweden.—The official statistics tabulated by Dr. U. Quensel, of Stockholm, show that the mortality from carcinoma has risen from 8 to 9.75 per 10,000 inhabitants during the four-year periods from 1875 to 1879 and 1895 to 1899 respectively. During the first period the women affected outnumbered the men by 192 to 100, and during the second, by 150 to 100. During the first, the carcinoma mortality represented 3.57 per cent. of the total number of deaths, and during the last, 6.27 per cent. The *Semaine Méd.*, in the abstract of his report, calls attention to the fact that the mortality is inversely proportional to the density of the population, being 10.05 per 10,000 in communities of less than 2000 inhabitants; 9.08 in towns of 2000 to 10,000, and only 8.53 in towns of more than 10,000.

Heat in Diagnosing the Presence of Pus.—According to the *British Medical Journal* of January 26, Dr. J. Lewin, of Berlin, has been making experiments which tend to show that the application of heat, while relieving pain resulting from simple acute inflammation, has a decidedly contrary effect when suppuration is present. He is said to have ascertained from the treatment of 10 persons affected with appendicitis, that where hot compresses were applied from one to two hours, 8 were greatly relieved, while the others experienced increased pain. Spontaneous cure resulted in the course of two or three weeks in the 8, but in the other 2, after trying medical treatment without result, operative interference was considered necessary and pus found in both instances. In applying the test it is important to use no other calmative means, and to keep the patient ignorant of the expected results, in order that the effect may not be modified by a dread of operation.

Lay Massage.—The physicians in Belgium are trying to have a clause inserted in the medical practice bill now under discussion, to the effect that massage and medical gymnastics belong exclusively to the domain of medicine and should not be practised by empirical masseurs, with the exception of certain mild affections of the members and the muscles of the back. Masseurs for this purpose should pass an examination before a competent body, and be entitled to a diploma. The *Progrès Méd.* of Paris expresses disapproval of this latter suggestion and urges that massage should be exclusively restricted to physicians. It gives a long list of injuries produced by empirical massage, including the aggravation of contractions, progressive atrophy, laceration of tendons, transformation of a simple arthritis into a hydrarthrosis, etc. The Belgian committee also cites cases of rupture of the tendo Achillis, followed by permanent limping, a thrombosed vein kneaded by a masseur with the death of the subject during the séance, and a suppurative appendicitis perforating into the peritoneum during massage. Zabloudowsky has also published instances of the formation of furuncles and abscesses from lay massage, proving fatal in two cases, displacement of fragments of bones in fractures, transformation of convalescing lesions into subacute, acute and chronic stages, especially in joint affections, production of ankylosis and movable kidney, traumatic inflammation of the sheaths of the muscles and nerves, enlargement of hernia and of the umbilicus, and aggravation of mild forms of hysteria and neurasthenia by the prolonged excitation of the peripheral nerves. One of our Vienna exchanges recently published a case in which a person had undergone a physical examination for some purpose, the kidneys found normal in every respect. A few days later, after some lay massage, the kidney was found transformed into a floating organ. Berlin has now a chair of massage, and special courses in massage at clinics in Heidelberg, Leipsic, Stockholm, Vienna, and elsewhere have long been open to physicians.

Societies.

COMING MEETINGS.

Tri-State Medical Association of the Carolinas and Virginia, Richmond, Va., Feb. 26, 1901.

Medical Society of the Missouri Valley, Omaha, Neb., March 21, 1901.

Portsmouth (N. H.) Medical Society.—This Society, at its annual meeting, February 5, elected Dr. Arthur J. Lance, president; Dr. Benjamin Cheever, secretary, and Dr. Andrew B. Sherburne, treasurer.

International Alcohol Congress.—The eighth international congress against the abuse of alcohol is to assemble at Vienna, April 9. The secretary is Prof. Max Gruber, Schwarzpanier str. 17, Vienna.

Alton (Ill.) Medical Association.—This Society, on February 4, elected Dr. Edward C. Lemen, Upper Alton, president; Dr. Titus P. Yerkes, Upper Alton, vice-president; Dr. Lincoln M. Bowman, Alton, secretary, and Dr. Julius H. Fiegenbaum, Alton, treasurer.

Nineteenth German Congress of Internal Medicine.—Senator will be the president at the congress of internal medicine which will be held at Berlin, April 16 to 19. The chief subjects to be discussed are: "Heart and Vasomotor Remedies," and "Inflammation of the Spinal Cord."

Vigo County (Ind.) Medical Society.—At the annual meeting of this Society, in Terre Haute, Dr. George Schell, Terre Haute, was elected president; Dr. Dupuy, Riley, vice-president; Dr. Malachi R. Combs, Terre Haute, secretary, and Dr. Cassius M. Smick, Terre Haute, treasurer.

Sault Ste. Marie (Mich.) Medical Society.—This Society, with which it is expected that the physicians of the Canadian Soo will affiliate, has been organized with the following officers: Dr. Emil H. Webster, president; Dr. Frederick Townsend, vice-president, and Dr. H. E. McLennan, secretary and treasurer.

Union County (Ill.) Medical Association.—Twenty physicians of Union County met at Anna, January 31, and organized this Society, with Dr. James I. Hale, Anna, as temporary chairman, and Dr. T. Lee Agnew, Anna, temporary secretary. Permanent organization will be effected February 27.

Atlantic County (N. J.) Medical Society.—This Society, at its annual meeting, February 6, elected officers as follows: Dr. Theophilus H. Boysen, Egg Harbor, president; Dr. William Edgar Darnall, Atlantic City, vice-president; Dr. Theodore Senseman, Atlantic City, secretary and treasurer, and Dr. A. Burton Shiner, Atlantic City, reporter.

Denver and Arapahoe Medical Society.—The board of directors of this Society has decided to "vary the monotony" of the meetings by alternating sessions at which papers are read and clinical symposia with presentation of cases and specimens, or more or less social sessions. This plan was adopted three years ago by the Chicago Medical Society, and the results have fully justified the change.

Northeastern Ohio Union Medical Association.—At the one hundred and eighteenth quarterly meeting of this organization, held in Akron, February 12, the following officers were elected: Dr. George L. Starr, Hudson, president; Drs. George S. Peck, Youngstown, and Abner E. Foltz, Akron, vice-presidents; Dr. John H. Seiler, Akron, recording secretary; Dr. Charles W. Milliken, Akron, corresponding secretary, and Dr. Harold H. Jacobs, Akron, treasurer.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting Held January 23.

Dr. George Erety Shoemaker in the chair.

Malignant Endocarditis.

DR. ALBERT E. ROUSSEL reported three cases of malignant endocarditis, one following measles, one typhoid fever, and another resembling splenic-lymphatic leukemia terminating in recovery. The first case reported was that of a patient aged 22 years, who had, during youth, suffered from bronchitis. On October 25, symptoms of measles set in, followed later by fevers, sweats and chills. There were vague body pains and loss of flesh and strength. At one time the disease was supposed to be typhoid fever. The temperature was 103, the pulse small, respirations 36. The apex-beat was in the fifth interspace, where a low-pitched murmur was heard. Later the action of the heart became irregular, and a diagnosis of probable endocarditis was made. Death followed. The postmortem showed that there was no hypertrophy; the left auricle was dilated, but with greyish-white vegetations on the valves. The other valves were healthy.

The second case was a patient aged 9 years, who had measles and chicken-pox. He had been examined subsequently by the speaker, but there had been no heart lesions produced by these attacks. Sometime later he passed through a typical attack of typhoid fever, all of the symptoms and clinical signs having been present. On December 1 he had a decided rigor and abdominal pain, and pain referred to the region of the appendix. He suffered from irregular fever for thirty-three days, but at times the temperature became subnormal. The red cells numbered 3,700,000; whites 44,000, and the hemoglobin was 25 per cent. The patient presented a waxy appearance, and the abdomen would pit on pressure. The blood was examined later and showed 3,100,000 reds; 49,000 leucocytes; hemoglobin 25 per cent. The polymorphonuclears were 79 per cent.; mononuclears, 2 per cent.; transitional forms 2 per cent., and eosinophiles 1 per cent. Death followed. The heart was normal in size; the coronary arteries were very firm; the spleen showed infarcts, as did the liver.

The third was a patient who had passed a life insurance examination. The onset was marked by symptoms of rheumatism, with fever and sweats. Slight jaundice subsequently occurred. On May 22, the liver was found enlarged, the apex-beat diffuse. There was a distinct cardiac murmur which was transmitted to the left. The pulse was 116. The red cells numbered 3,000,000; leucocytes, 26,000; and hemoglobin, 35 per cent. The pulse was 148 and irregular.

The speaker stated that in malignant endocarditis streptococci are generally found on the heart valves, though the following have also been found; the bacillus lanceolatus, staphylococcus, pneumococcus, and gonococcus. Some writers believe that the condition is a primary one, while others contend that it is secondary, or is grafted on a previous heart lesion. As a rule the right heart is affected.

DR. JAMES TYSON stated that he had seen numerous cases of malignant endocarditis accompanied by fever, sweats and chills. He believed that the process was a septic one, and frequently never recognized during life. Pneumonia is probably the most common cause. The right heart is most frequently involved, due to the fact that the valves here receive the blood from the veins. He thought that in the next case he has anti-streptococcic serum will be given.

DR. J. M. ANDERS expressed his belief that the principal point of interest in regard to these cases, hinges on the diagnosis. The infection is usually a secondary one, though it may occasionally be primary. As to the diagnosis, when we meet cases in which there is a cardiac murmur, colliquative sweats, and a high grade of anemia, we should suspect endocarditis. In former days endocarditis was mistaken for typhoid fever, but the absence of leucocytosis and the Widal reaction would be against typhoid.

Epiplopexy in Liver Cirrhosis.

DR. J. B. ROBERTS read a paper on "Epiplopexy in Cirrhosis of the Liver." He has recently done this operation twice, once on a man aged 49 years, whose father had died of cirrhosis of the liver. The patient had manifested symptoms of this disease and an incision was made in the usual manner, the omentum drawn out, the peritoneal surface of the abdominal wall rubber with gauze and the omentum stitched with chromicized catgut. Relief of the ascites followed.

The second patient was a man 64 years of age, whose abdomen had for the past eight months grown considerably larger in size. He had been tapped eight times. There was much jaundice, and some edema of both legs. Tube casts were found in the urine. The operation was done under cocain anesthesia. A small incision was made above the umbilicus, but the omentum could not be found and another incision was made below it. The omentum was then drawn up and spread out, then rolled over slightly so that the stitches would not pull out—which happened in one case—and then stitched to the abdominal wall.

He believes that the operation should be done as early as possible after the onset of cirrhosis.

DR. JAMES TYSON had seen this operation prove of great benefit to a case of cirrhosis of the liver. It had cured the ascites.

DR. WM. L. COPLIN thought that it might be a question whether anything is gained by this operation, since it short-circuits the blood supply of the liver, and if this is done the nutrition of the body might become impaired from loss of these elements.

DR. ERNEST LAPLACE believes that in cirrhosis of the liver the condition can not be compared to that of a healthy organ. In the former case the liver is incapacitated anyway, and it does its work in a circuitous route. He approves of the operation as done by Dr. Roberts.

CINCINNATI ACADEMY OF MEDICINE.

Regular Meeting, held January 28.

Perichondritis Auriculi.

The president, Dr. C. L. Bonifield, in the chair.

DR. C. R. HOLMES presented a patient with this trouble, involving the right ear. He first mentioned that this affection was an extremely rare one, in fact it was the first true instance of the disease that had thus far come to his notice. The patient was a girl, about 17 years of age, on whom he had operated nine weeks previously—a radical mastoid operation. She had recovered nicely from this operation, and just as he was on the point of sending her home, this inflammation, involving the cartilage of the auricle, had made its appearance. It started first in the concha, and then spread over the entire auricle, seeming to involve as it were a segment at a time. A number of incisions had been necessary and they had invariably been kept open by packing. There would undoubtedly be some deformity of the auricle, but he trusted that by keeping the pus well drained this would not be very extensive.

Seborrheal Eczema.

DR. E. H. SHIELDS presented a woman who had been shown at a meeting of the Academy several months ago, and in whom at that time he had made a diagnosis of lichen ruber planus. He had had reason subsequently to change this diagnosis to seborrheal eczema. The patient at this presentation seemed to have entirely recovered.

Sarcoma of Testicle and Scrotum.

DR. J. AMBROSE JOHNSTON showed a specimen. The history was as follows: Mr. F., aged 50 years, had noticed a gradual enlargement of his left testicle for about two years, associated with paroxysmal attacks of pain. Recently he had noticed a beginning enlargement on the right side. The shape of the scrotum was, on examination, very similar to that of hydrocele; light, however, was not transmitted. Insertion of a hypodermic syringe drew off a dark, bloody fluid. When the patient came to operation it was found that the skin and tunica vaginalis were about half an inch in thickness, and the testicle was cystic; in size, three inches in one diameter and two in another. An incision was then made over the right testicle and the same condition, only less extensive, having been found, it was decided to remove both and the scrotum as well, the entire mass having an appearance of malignancy. This was done, and the cords ligated with catgut as high up as possible. The patient made an uneventful recovery. Microscopic examination revealed that the sarcomatous infiltration had involved both the tunica vaginalis and the skin in addition to both testicles.

Congenital Abnormality of the Small Intestine.

DR. J. C. OLIVER presented a specimen and report of a case. Soon after the birth of the infant it was given a small dose of castor-oil. This was vomited. No movement of the bowels occurring, the dose was repeated the following morning, and was again rejected. An injection was then given and a piece of black, hard material, coated with mucus, was passed *per anum*. For about forty-eight hours the patient was in charge of a midwife, but no passage from the bowels occurring during this period, Dr. B. P. Goode was called in. Dr. Oliver saw the child about eight hours afterward, with Dr. Goode. It had not nursed for twenty-four hours, and the abdomen was somewhat distended. The nurse in charge insisted that some gas had been passed from the rectum and, relying on this statement, a small quantity of senna and rhubarb was given. Returning the next day, he was informed that every dose of the cathartic had been vomited, and that the vomit had now assumed a fecal character. Examination of the rectum showed that no obstruction existed at this point, so the child was prepared for abdominal section. On opening the abdomen and examining the bowel, a dilated portion of the small intestine ending in a blind pouch was found; beyond this was a layer of tissue resembling the mesentery, but possessing no blood vessels and about 1¼ inches beyond the termination of the bowel described above was the beginning of another portion of the bowel; this began as a blind pouch and had no communication with the bowel above. As the intestinal caliber was too small to accommodate a Murphy button, end-to-end anastomosis was made. Death followed in about five hours. Post mortem examination showed that the defect existed at the lower end of the ileum, about two inches above the junction with the head of the colon. The small intestine above the obstruction was greatly dilated, while that below, as well as the large intestine, was collapsed and empty. The specimen also showed that in spite of the fact that death had occurred within five hours after section, Nature had rapidly proceeded with healing; the water trial showed that union was firm and that there was no leakage. The remaining portion of the intestinal canal was normal.

Ovarian Cyst with Twisted Pedicle.

DR. RUFUS B. HALL presented specimens of intrapelvic disease with histories, one being an ovarian cyst with acute twisted pedicle, with peritonitis, operation and recovery. The patient, aged 40, having been informed by her family physician that she had a tumor, consulted him about having it removed. She lived a number of miles outside the city, and asked for a few days to complete some family arrangements before coming to the hospital. Up until the time she entered the hospital she was on her feet a great deal, and at the time of her entrance complained greatly of abdominal pain; her pulse and temperature were, however, normal. The operation had been set for the fourth day. During this time she became steadily worse, though her symptoms were not serious until the morning of the day determined on for operation. He had no doubt at that time that the pedicle of the freely movable tumor had become twisted. On opening the abdomen he found a cyst, perfectly black; this tapped, yielded more than a gallon of blood-stained fluid; a portion of the tumor, about as large as a cocoanut, was solid. The pedicle was long, narrow, and twisted three times upon itself; the venous supply was entirely cut off, but not the arterial. The result of this was that many of the veins lining the tumor had become gradually distended until rupture had occurred. There was at least three pints of blood-stained ascitic fluid within the general peritoneal cavity. General peritonitis of high grade was also present. The tumor was removed without difficulty, the abdomen thoroughly drained with normal salt solution, a glass drainage tube inserted—removed in thirty-six hours—and the wound closed. For two days her life was despaired of, but at the end of that time she began to rally and from then her convalescence was uninterrupted. She was discharged well in four weeks.

NEW YORK ACADEMY OF MEDICINE.

January Meeting of the Section on Pediatrics.

Infantile Colic.

DR. H. ILLOWAY, in a paper on this topic, said that the principal causes of infantile colic are flatulence, influences acting through the mother, indigestion, and refrigeration. Slow or imperfect indigestion will cause flatulence, and constipated mothers are apt to have constipated nurslings. It is generally recognized that indiscretions in the mother's diet often inflict much misery on her nursing infant, but it is less generally un-

derstood that salts, senna and similar purgatives, even when taken in such small doses as to fail to exhibit their action in the mother, may cause colic in the nursing infant. Changes in the breast milk, arising from mental worry, sudden emotion or sexual excitement, occasionally affect the infant profoundly, and the possibility of their occurrence should be borne in mind. An obstinate colic has been known to resist all treatment until the mother has been relieved of a toothache from which she has been suffering. The physician will often be misled in his efforts to elicit a history of overfeeding or of too frequent feeding unless he makes pointed and persistent inquiry. Refrigeration is an important causative factor, and generally arises from the infant being allowed to lie in a wet diaper, or in a draught or sit on a cold floor. An important point in the differential diagnosis between simple infantile colic and that dependent on grave pathologic conditions is that in the former the little one kicks and cries and then relaxes into a smile. An excellent means of relieving the colic is irrigation of the lower bowel with hot water, and the external application of heat. Of the many remedies recommended, he has found none superior to freshly prepared milk of asafetida, given in a dose of one-third to one-half teaspoonful, and repeated in fifteen or twenty minutes if required. If given with a little fine sugar, on a spoon, few babies will refuse it. Hiccough is often quickly relieved by putting a few grains of fine sugar into the infant's mouth. The treatment will include the removal of the cause as well as the relief of pain, and one should be slow to resort to opiates in a case of protracted colic.

DR. THOMAS S. SOUTHWORTH remarked that many babies who are thought to be colicky are only petted and spoiled ones. By regulating the mother's diet and the intervals of nursing, and insisting that she take more out-door exercise, most cases of colic in the nursing infant can be satisfactorily treated. An important step is the personal examination of the stools.

ORLEANS PARISH MEDICAL SOCIETY.

Meeting held February 9,

Bony Outgrowth from Clavicle.

DR. E. MOSS read a report of a case of bony outgrowth from the clavicle, in which a diagnosis of sarcoma was made on the first examination. Two weeks of antisyphilitic treatment caused a rapid diminution in the size of the growth, which ultimately disappeared under a continuance of the same treatment.

Peculiar Symptoms in Influenza.

DR. A. NELKEN reported a case of influenza presenting peculiar symptoms. The patient had, with some elevation of temperature, enlargement of the cervical glands and a throbbing pain in the chest, which was ascribed to enlarged mediastinal glands pressed upon by the large vessels in their vicinity.

Case of Delayed Bowel Action.

DR. J. BARNETT reported the case of a woman who usually had but one fecal evacuation in two weeks, and that so small as to be entirely out of proportion to the ingesta. He was inclined to believe that hers was a case not of retention of feces in the alimentary tract, but of unusually good absorptive powers, with little of the ingested substances being left for evacuation.

Current Medical Literature.

Philadelphia Medical Journal, February 9.

1 Case of Blindness from Sympathetic Ophthalmitis, Complicated with Secondary Glaucoma. Restoration of Vision by Two Iridectomies, One with Extraction of Lens, and Iridocystectomy, and Tyrrell's Operation of Drilling. Charles A. Oliver.
2. A Case of Unilateral Progressive, Ascending Paralysis. William G. Spiller.
3 *Cavité Fever. B. L. Wright.
4 *Exophthalmic Goiter of Syphilitic Origin. R. Abrahams.
5 *The Surgical Importance of Apparently Simple Carbuncles and Furuncles of the Upper Lip. Charles A. Powers.
6 A Case of Cocain Habit of Ten Months' Duration Treated by Complete and Immediate Withdrawal of the Drug. George W. Norris.
7. Report of a Case of Enormous Ventral Hernia; of a Case of Dermoid Cyst of the Ovary, and of a Case of Profound Shock Following a Crush of the Arm. Francis T. Stewart.
8 *The Treatment of Post-operative Hernia. Irving S. Haynes.
9 *On the Dietetic Management of Typhoid Fever. David Ingis.
10 *Sudden Death in Pleurisy. Charles L. Allen

New York Medical Journal, February 9.

11 A Case of Gastro-Intestinal Hemorrhage Caused by Fatty Degeneration of the Right Ventricle of the Heart. Charles Phelps.
12 *A Clinical Analysis of Digitalis and Its Preparations, Calling Especial Attention to the Glucosides and More Especially to Digitoxin. Leon L. Solomon.
13 Amebic Abscess of the Liver with a Report of Four Cases. C. R. Darnall.
14 *Autointoxication from Renal Insufficiency, With and Without Diseased Kidneys; With Reports of Some Remarkable Cases. James T. Jelks.
15 Intestinal Obstruction. Louis A. Hering.
16 *Some Remarks on Epidural Hemorrhage Without Fracture of the Skull, and Report of a Case. J. Shelton Horsley.
17 *The Closure of Cutaneous Wounds Without Suture. Howard Lilienthal.
18 *Tracheal Injections in the Treatment of Pulmonary Tuberculosis. T. Morris Murray.

Medical Record (N. Y.), February 9.

19 Summary of the Progress Made in the Nineteenth Century in the Study of the Propagation of Yellow Fever. Charles Finlay.
20 *Investigations Upon Corporeal Specific Gravity, and Upon the Value of This Factor in Physical Diagnosis. Heinrich Stern.
21 *The Use of the Aqueous Extract of the Suprarenal Capsule as a Hemostatic. W. H. Bates.
22 *The Clinical Significance of Dulness in Appendicitis. H. T. Miller.

Boston Medical and Surgical Journal, February 7.

23 *Gonorrheal Infection. Benjamin Tenney.
24 *The Bacteriological Diagnosis of the Gonococcus. Oscar Richardson.
25 Treatment of Acute Gonorrhea. Franklin B. Balch.
26 Gonorrhea in Women. W. L. Burrage.
27 Treatment of Chronic Gonorrhea. Gardner W. Allen.
28 The Seminal Vesicles in Gonorrhea. Charles L. Scudder.
29 Gonorrheal Prostatitis. John B. Blake.
30 Gonorrheal Conjunctivitis. Charles H. Williams.
31 When Is Gonorrhea Cured? Paul Thorndike.

Medical News (N. Y.), February 9.

32 Some Unusual Cases of Infectious Diseases—A Clinical Report (Diphtheria, etc.). Delancey Rochester.
33 *Remarks Upon the Construction of Amputation-Stumps, With a Report of Two Cases of Amputation by the Osteoplastic Method of Bier. Alexis V. Adams.
34 *Parasites in the Blood. Leon T. Le Wald.
35 *General Remarks on the Combination of Ether (57 Parts) and Chloroform (43 Parts) Known as the M. S. Mixture. Edward Adams.
36 A Report of Some Cases of Abdominal Surgery, with Remarks on the Diagnosis of Carcinoma of the Cecum and the Surgical Treatment of Carcinoma of the Liver and the Gall-Bladder. Charles Greene Cumston.

Cincinnati Lancet-Clinic, February 9.

37 *What Is Insanity? Brooks F. Beebe.
38 *Spinal Anesthesia. H. J. Whitacre.
39 *Unclean Mouths. M. H. Fletcher.
40 Resinol Dermatitis. M. L. Heidingsfeld.
41 Salt Water Hypodermic Injections in the Morphin Habit. H. V. Sweringen.

St. Louis Medical Review, February 9.

42 *Seborrhea and Its Pathology. Wm. P. Loth.
43 *The Successful Management of Trigeminal Neuralgia With and Without the Knife. C. H. Hughes.

Virginia Medical Semi-Monthly (Richmond), January 25.

44 Spectacles—Their Use and Abuse. Joseph A. White.
45 *Tuberculosis of the Peritoneum. Wallace Neff.
46 Report of a Case of Pylorectomy for Carcinoma. Stuart McGuire.
47 Report of the Maternity Service of Columbia Hospital. John F. Moran.
48 *Two Cases of Amblyopia Following the Use of Jamaica Ginger. John Dunn.
49 The Physicians' Home—Its Organization, Location and Prospects. John S. Harris.

Physician and Surgeon (Detroit and Ann Arbor, Mich.). December.

50 Presentation of Site for Monument. John R. Bailey.
51 Beaumont—Army Surgeon. John R. Bailey.

52 Beaumont—Practitioner. Frank J. Lutz.
53 Beaumont—Citizen. Chase S. Osborn.
54 Physiology in the High School. Louis Murbach.
55 Hygiene of the Eye. William H. Poole.
56 The Peritoneum and the Omentum in Appendicitis. William A. Spitzley.
57 A Summary of the Year's Work in Obstetrics. (Concluded.) Theodore R. MacClure.

Journal of Experimental Medicine (N. Y.), January 15.

58 *The Superficial Glands of the Esophagus. Albion W. Hewlett.
59 *False Diverticula of the Intestine. Martin H. Fischer.
60 Some Theoretical Considerations Upon the Nature of Agglutinins, Together With Further Observations Upon Bacillus Typhi Abdominalis, Bacillus Enteritidis, Bacillus Coli Communis, Bacillus Lactis Aerogenes, and Some Other Bacilli of Allied Character. Herbert E. Durham.
61 Report of a Laboratory Epizootic Among Guinea-Pigs, Associated With Gaseous Emphysema of the Liver, Spleen and Kidneys, Due to Bacillus Mucosus Capsulatus. R. G. Perkins.
62 *On the Relation of Chronic Interstitial Pancreatitis to the Islands of Langerhans and to Diabetes Mellitus. Eugene L. Opie.

Maryland Medical Journal (Baltimore), February.

63 Reminiscences of an Old New England Surgeon. J. Collins Warren.
64 Tuberculosis of the Vesiculæ Seminales, Testes and Prostate; Complete Excision of Right Side; Incision and Curetting on Left Side; Cured. George Walker.
65 A Review of Some of the Recent Work on the Physiology and Pathology of the Blood. Thomas R. Brown.

Medicine (Detroit, Mich.), February.

66 *Treatment of Tuberculosis of the Spine. Alex C. Wiener.
67 *Addison's Disease. Charles G. Willson.
68 Extragastric Hematemesis—A Clinical Lecture. Maurice L. Goodkind.
69 *Carcinoma of the Thyroid Gland. A. E. Halstead.
70 Removal of Foreign Bodies from the Auditory Canal. G. C. Savage.

Pennsylvania Medical Journal (Pittsburg), January.

71 Address in Ophthalmology. Charles McIntire.
72 Appendicitis and Its Treatment. M. Price.
73 A Case of Appendicitis in a Child Two Years and Six Months Old—Operation—Appendectomy—Recovery. G. W. Guthrie.
74 Dilatation of the Stomach and Bowels Following Laparotomy. With Report of a Case. Frank Alleman.
75 Tuberculosis of the Bladder. E. P. Ball.
76 Nitrate of Silver in Dermatology—Notes on Chloretone. J. C. Dunn.
77 Tubercular Lymphadenitis. L. J. Hammond.
78 Constipation or Obstipation and Its Practical Treatment. William M. Beach.
79 Surgical Diagnosis by the Roentgen Method. Charles L. Leonard.

Journal of Cutaneous and Genito-Urinary Diseases (N.Y.), February.

80 *Syphilis and Associated Affections. L. Duncan Bulkley.
81 *Syphilitic Lesions of the Wheal Type. Hermann G. Klotz.
82 *An Unusual Phenomenon of Syphilis: Othematoma. Joseph Zeisler.
83 The Etiology and Pathology of Cutaneous Cancer. A. Ravogli.

Louisville Monthly Journal of Medicine and Surgery, February.

84 Version: With Report of a Case. Walker B. Gossett.
85 Alcohol as a Therapeutic Agent. Edwin C. French.
86 Case of Probable Leprosy. I. N. Bloom.

American Medical Compend (Toledo, Ohio), January.

87 Obstruction of the Bowels. M. Stamm.
88 A Report of Four Cases of Operation for Intestinal Injuries. William J. Gillette.
89 Heart Lesions in the Acute Specific Fevers. Wm. A. Dickey.
90 The Early Recognition of Pulmonary Tuberculosis and the Pretubercular Condition. John North.
91 The Early Aspiration of Pleural Exudates. G. A. Collamore.
92 Concerning Uterine Fibroids. Auguste Rhu.
93 Cystitis. Wm. W. Hill.
94 Some Observations in Injuries Involving the Articulations. Harmon B. Gibbon.
95 Placenta Previa Morris A. Darbyshire.
96 Post-Febrile Gangrene. J. U. Fauster.

Buffalo Medical Journal, February.

97 *Some Suggestions in Using Bromids in Epilepsy. L. Pierce Clark.
98 *Some Reflections on the Treatment of Rheumatic Manifestations. H. A. Richy.
99 Dermatitis Exfoliativa. William A. Howe.
100 A Country Health Officer and Board of Health. E. H. Ballou.
101 Note on Fitting Trusses. M. A. Veeder.
102 Alcoholism—A Crime or a Disease. F. E. Fronczak.
103 *Formaldehyde Gas. William G. Bissell.

St. Paul Medical Journal, February.

104 Intestinal Obstruction by a Peritonitic String Forming a True Knot. Arnold Schwyzer.
105 Brain Tumor. Arthur W. Dunning.
106 Tumor of the Pituitary Body. Arthur Sweeney.
107 Medullary Narcosis. C. P. Thomas.
108 Is It the Duty of the State to Care for the Tuberculous Individual? The Experience of Massachusetts. George L. Richards.
109 Perinephritic Abscess. James W. Robertson.

Medical and Surgical Monitor (Indianapolis, Ind.), January 15.

110 A Case of Accidental Vaccination. John T. Scott.
111 Headache. John L. Masters.

Albany Medical Annals, February.

112 Address, Albany Medical College. Herman C. Gordinier.
113 *Leprosy in the Hawaiian Islands. Charles E. Davis.

St. Louis Courier of Medicine, January.

114 The Present Status of the Treatment of Puerperal Infection. H. J. Garrigues.
115 Operative Removal of More Than Half of the Radius for Eburnation of the Bone. L. T. Riesmeyer.
116 Diagnostic Difficulties in Cystic Myomata of the Uterus, With Report of a Case. Fred J. Taussig.
117 Removal of Tonsils With Special Reference to the Use of the Farlow Punch. Charles J. Orr.
118 Some Remarks on X-Ray Diagnosis. Wm. W. Graves.
119 *A Few Cases of Secretory Neurosis of the Stomach. M. D. Schmalhorst.

American Gynecological and Obstetrical Journal (N.Y.), January.

120 Deep Imprints (Dr. Thomas Addis Emmett). William H. Hingston.
121 *Intrapelvic Operations for Relief of Posterior Uterine Displacements. Walter B. Chase.
122 A Case of Congenital Hypertrophy of the Cervix, Complicated by Prolapsus and Bilateral Pyosalpinx in a Girl 17 Years Old—Vaginal Hysterectomy. Abram Brothers.
123 *Uterine Curettement. Douglas C. Moriarta.
124 A Solid Ovarian Tumor. John G. Earnest.
125 *A Unique Case of Intrapelvic Hemorrhage Due to a Hitherto Undescribed New Growth. W. P. Manton.

Toledo Medical and Surgical Reporter, February.

126 Address Before the Toledo Medical Association. William H. Fisher.
127 Criminal Abortion. W. D. Stewart.
128 Hematology from a Practical Standpoint. Julius H. Jacobson.
129 Heart Failure. William O. Wilson.

AMERICAN.

3. **Cavite Fever.**—Wright describes the form of a disease which seems to be endemic in certain localities of the Philippine Islands, characterized by abrupt onset, high temperature, severe muscular pain, extremely painful and tender eyeballs. The predisposing causes are high temperature, low damp localities, overcrowding, and possibly the nearness to salt water. The exciting cause is supposed to be microbic, though it is as yet unknown. No deaths have occurred and the pathology is obscure, but the author seems to think it due to a toxic peripheral neuritis. The disease is most apt to be confused with dengue, but the absence of an afebrile period and rash enables one to differentiate it from that disease. The absence of catarrhal symptoms separates it from epidemic catarrh. The treatment is rest in bed, with liquid diet, free opening of bowels and cold-tar antipyretics and quinin. In some cases it has been followed by local atrophy and paralysis.

4. **Exophthalmic Goiter.**—Three cases are reported by Abrahams, which seem to point to syphilitic infection as a precedent to Graves' disease. He thinks that the specific affection is not a mere accident or coincidence. The old idea which charges exophthalmic goiter to a disturbance of the cervical sympathetic should receive attention only after syphilis has been excluded, and those cases which yield to mercury or the iodids be looked upon as of syphilitic origin. All the cases where the orthodox remedies fail should be put to the test of specific treatment, and also those characterized by gangrene of the extremities, pigmentation or nocturnal headaches or other suspicious symptoms.

5. **Carbuncle of the Lips.**—Powers calls attention to the danger of inflammatory local disorders in the region of the

lips, and the risk of thrombosis of the facial veins extending to the cerebral sinus and causing facial pyemia. The only remedy in such cases is prompt excision, through the mucous surface of the lip, if possible.

8. **Post-Operative Hernia.**—The cure of post-operative hernia is only by operation, and Haynes suggests the following practical directions: 1. Make the incision in each side of the old scars in the healthy skin, though large surfaces must be incised. 2. Look for and recognize the various muscles of the facial planes at a distance from their cicatricial involvement and incise the layer in normal tissue. 3. Divide the peritoneum far enough from the cicatrix so that its normal tissues are easily recognized. 4. Sever adhesions of hernial sac to the viscera or omentum, between ligatures when necessary. 5. The omental stump is to be covered up by rolling into the omentum and keeping it there by running sutures of free catgut. The deeper sutures of the intestines should be covered by bringing the peritoneal coats together, thus preventing subsequent adhesion. 6. Close the wound with chromic catgut after all oozing has been arrested. Unite the peritoneum with a No. 0 chromic gut; the muscular layers by a No. 1, if they are thin and weak, and a No. 2 if thick and strong. The fascial layer is to be closed by a continuous suture or interrupted stitches of No. 1 chromic, and the skin by a No. 0 applied subcutaneously. The wound is to be protected by a light dressing and supported by rubber adhesive bands. Rest in bed for at least three weeks should be observed to give the union sufficient strength. No truss should be used afterward.

9. **Dietetic Management of Typhoid.**—Inglis protests against the use of milk as a diet in typhoid. It is not to be considered as a liquid diet for, after its introduction into the body, it becomes solid and the best kind of culture-medium. The fear of starvation is useless, the ideal diet for typhoid fever is pure water in abundance. This will keep up the excretions by the skin, lungs, kidneys and liver, and the elimination of poisons is a necessity. The bowels then being emptied become open to antiseptic treatment. Later, to satisfy friends and others, he would give such foods as are most easily digestible and absorbed in the stomach, keeping in mind that while the stomach may be acting poorly the intestines are worse. Tender lamb chops and poached eggs are better than milk. He speaks strongly against the use of alcohol as a stimulant; he gives a small drink of good coffee instead, which is more permanent in its effect and may be given with cream and sugar. Sugar, he considers a valuable diet, highly nutritious, while no other hydrocarbon is more promptly and easily absorbed, and the typhoid patient can take it up rapidly.

10. **Sudden Death in Pleurisy.**—Allen reports a case of sudden death in pleurisy and discusses the mechanism of such cases, giving the opinions of authorities. This case, he thinks, can be best explained by assuming that a fleck of fibrin was absorbed from the area of fresh pleurisy in the right lung, carried to the pulmonary vein and lodged there, thus producing a gradual thrombosis causing fatal termination several hours later. This case certainly lends no support to the theory of vascular kinking, since, though the adhesions were very extensive, there was no contraction of the chest and the heart was not displaced.

12. **Digitalis.**—Solomon first describes the constituents of digitalis and their therapeutic standing. As regards the choice of digitalis preparations, he enumerates the various requirements as follows: 1. Should the effect be immediate or slow? 2. Is cardiac action chiefly desired? 3. Is diuretic action wanted? 4. Should the action be both cardiac and diuretic? But one preparation of digitalis fully represents the drug, that is the powdered leaves. In the tincture containing digitalin and digitoxin the action is chiefly cardiac and slightly diuretic: the infusion containing little if any digitalin or digitoxin, but considerable digitonin, as well as some digitalein, is the best diuretic preparation. In prescribing the tincture it is well to remember that the addition of water modifies the virtue of the preparation by precipitating the contained digitoxin. If water is taken with the dose, any precipitate that settles at the bottom should be swallowed. As regards its physiologic action he calls attention to certain fallacies, viz., the estimation of the effects of the drug from experiments on healthy animals as compared to those on diseased individuals. All drugs have more or less specific or selective action in disease, frequently sometimes in different diseases. This has been shown to be so in cases with digitalis. We are taught that this drug is indicated where there is failure of dynamic power of the heart, especially if at the same time the arterial tension is low, but it is surprising, and this point must be emphasized, what benefit follows the administration of the drug in cases where on theoretical grounds it would seem best to avoid it. This is so not infrequently in aortic regurgitation. The nitrites, especially nitroglycerin, often make an admirable addition to the drug in cases where it is apparently contraindicated, and permit it to be used where it would otherwise be impossible. The cumulative action may be entirely avoided by carefully watching the diuresis and by the administration of the drug as longer intervals. Occasionally it is well to skip a day or two. The relative cardiac and diuretic action of the digitalis derivatives is noticed. Digitophyllin has been used to a very limited extent. Its action resembles digitoxin and it may some day come into general use. On the heart and circulation in general the three digitalis glucosids, digitalin, digitalein, and digitoxin, have effects much in common, though there are certain well-defined differences. All three are true heart stimulants, but digitalin is unique in its special influence on the vasomotor center, medulla, and ganglia in the muscular coats of the blood-vessels, contracting them and raising the arterial pressure. It also slows the pulse by directly stimulating the cardiac ganglia. Digitalein and digitoxin do not directly raise arterial tension and slow the pulse, but they do dilate renal blood-vessels, increasing the flow of the urine, and in this respect their therapeutic value is great, especially in cardiac affections accompanied by low arterial tension. The author contrasts digitalin and digitoxin, the latter being the chief ingredient in the leaf, which should be standardized in the treatment of its contained digitoxin. It is superior to digitalin in its diuretic action. Its action is prompter and more certain and it is less liable to cumulative action. He thinks it has the brightest future of all the digitalis preparations and in combination with nitroglycerin acts admirably. A number of cases are reported showing the cardiac and other conditions in which the drug has been used by the author.

14. **Uremia.**—Jelks calls attention to the fact that uremia may occur in persons with perfectly sound kidneys. The functional activity of this organism may be so affected that uremic symptoms arise. He notices the methods of examining for solid constituents and reports a number of cases of cardiac and other symptoms apparently connected with functionally, etc., insufficient excretion.

16. **Epidural Hemorrhage.**—The diagnosis of this condition is most important, and the symptom which is well nigh pathognomonic, as pointed out by Horsley, is the interval of consciousness between the time of injury and the first cerebral symptom, which may last for a few minutes or many hours, depending on the severity of the injury. Epidural hemorrhage frequently exists without such interval, but this class of cases will be found complicated with some trauma of the brain. Other important signs are injury to the scalp, if only a slight contusion, inequality of pupils, gradual appearance of coma heralded by stupor; early convulsions point to the seat of pressure. It takes a considerable amount of blood to cause sufficient pressure for cerebral symptoms and usually a number of centers are involved. The hemiplegia and paraplegia come on gradually according to whether the hemorrhage is at the side or top of the brain. Epidural hemorrhage at a distance from motor centers is not likely to cause convulsion or paralysis until it causes general compression and localizing symptoms which should be looked for. Breathing is slow, the pulse usually slow and full, later becoming rapid and weak, the temperature subnormal, and cases without fracture and contusions and of sufficient severity should be operated on as soon as possible under favorable circumstances. The author reports a case.

17. **Closure of Cutaneous Wounds.**—The following method is advised by Lilienthal for closing skin wounds or other eruptions so as to avoid infection, stitch abscesses, etc. The deep layers of the wound are closed with various materials, but the wound of the skin is covered with sterilized gutta-percha and the edges approximated with India rubber zinc plaster. He has had no infection in these cases, notwithstanding the plaster he had used was not considered aseptic, but has had one made recently by Johnson & Johnson, sterilized and kept in a sterilized container. When applying the plaster one must be careful to check all hemorrhage and to dry the skin thoroughly with alcohol or ether. The strips are then laid on. The method should not be used where there is tension. It is applicable in partial closures when drainage is employed. On the fifth or sixth day the strip should be removed by loosening both ends, drawing them toward the wound.

18. **Tracheal Injections.**—Murray calls attention to the method of introducing remedies by tracheal injections. The curved canula of the syringe is passed between the vocal cords, slowly injecting the fluid into the trachea, the Schadel syringe being used. He gives Mundell's prescription for injection, consisting of 5 grams each of the essences of thyme, eucalyptus, and cinnamon, with 100 c.c. of sterilized olive-oil, 3 c.c. being injected three or four times consecutively. The usual first effect of the injection is slight explosive cough. Out of thirteen cases treated during the past seven months all but three have been decidedly benefited; cough and expectoration have been lessened and temperature lowered. In no case has he seen glottic spasm follow the injections. The antiseptics used enter at once into the field of their labor, and penetrate to the farthest limit of the respiratory space, coming into immediate contact with the toxins as they are generated. While he says he does not undertake to estimate the full value of the treatment he thinks it may be fairly said that it does lessen the cough and expectoration and improve the general condition.

20. See abstract in THE JOURNAL, XXXV, p. 1172.

32. **Suprarenal Capsule.**—Bates emphasizes some facts already published and calls attention to the use of suprarenal capsule with its hemostatic action in operations on the eye, ear, nose and throat, urethra and uterus. He concludes his paper by saying that suprarenal extract is the most powerful known hemostatic and when properly used has no objectionable properties. When it is used locally, hemorrhages from the mucous membrane can always be controlled. Its internal use as a hemostatic is sometimes efficient. When it controls hemorrhages locally or otherwise its effects are noticeable in less than a minute from its administration. The dried powdered gland, he thinks, is the only preparation for internal use.

22. **Appendicitis.**—Miller maintains that there is a reaction taking place against the exclusively surgical treatment of appendicitis. That cases have occurred under surgeons where the appendix was found healthy speaks strongly against the too universal and indiscriminate operation. He thinks sufficient stress has not been placed upon the point of dulness and in every case in his experience, where he has relied upon this symptom, he has been led to a correct conclusion. In cases without any pronounced inflammatory symptoms, in which dulness was marked, he found the appendix indurated and adherent. Twenty cases are reported which show the significance of this symptom.

23. **Gonorrheal Infection.**—Tenney first notices the non-specific discharges and then passes to the question of actual gonorrheal infection. He emphasizes the importance of the persistence of the infection and does not hold that there is much danger of infection without any visible discharge for months. He discredits Noeggerath's and other estimates as to the extreme frequency of gonorrhea.

24. **Bacteriologic Diagnosis of Gonococcus.**—The most important precaution in examining for the gonococcus, according to Richardson, is to smear the pus properly on a cover-glass; usually it is too thick. Another important precaution is to be sure that the anilin oil gentian-violet has not decomposed. In examining for the organism in inflammatory processes other than gonococcic conditions, something being more than a cover-glass examination and the application of the Gram's method of staining is needed. The suspected microbe must be isolated in pure culture, its peculiarities found to agree with the known pictures of the gonococci, and the micrococci composing such colonies must be tested by the Gram's method and have a decided tendency to group in fours. The test of the behavior of the cocci so isolated, toward the Gram's method, is of great importance, and is to be applied with certain precautions: 1. The cultures must be over forty-eight hours old. 2. The cover-glass preparation must not be too thick. In short, no culture is to be regarded as a culture of the gonococcus unless the organism occurs only in special media, decolorizes by Gram's method and shows a decided tendency to grouping in tetrads.

33.—See abstract in THE JOURNAL, XXXV, p. 1685.

34. **Parasites in the Blood.**—Le Wald notices the filaria, recognizing the three forms, nocturna, diurna, perstans, and the plasmodium malariæ, the peculiarities of which are briefly stated.

35. **M. S. Mixture.**—The title of this article defines the mixture. Adams concludes that its chief advantages are: 1. State of excitement and struggling are not marked. 2. It requires a short time to get a patient under, five or ten minutes. 3. Very little of the anesthetic is required. On an average about 40 c.c. are used in an hour. 4. It is a comparatively safe anesthetic. 5. It is very pleasant to take. 6. The after-effects are not marked. 7. Patients recover quickly. 8. It can be used in nearly every condition in which either chloroform or ether is employed.

37. **Insanity.**—Beebe discusses the conditions and symptoms that constitute insanity, basing the diagnosis: 1, upon the state of feeling—emotions: 2, upon the reasoning faculties—intellect; 3, upon the power to do or not to do—volition—the proper balance of these three being sanity. The due consideration of these will establish the fact whether the patient is in a state of mental daylight, twilight, or darkness.

38. **Spinal Anesthesia.**—Whitacre reports four cases of spinal anesthesia in which the method was successful and the by-effects not serious. The dangers, he thinks, are the possible mortality which may result from a toxic effect of the drug upon the respiratory or cardiac apparatus or from the production of thrombi or emboli which may result from infection, or from the too rapid withdrawal of the cerebrospinal fluid. Symptoms of poisoning or depression may occur short of death, and in quite a majority of cases severe vomiting has been noticed. The method never can be applied in certain classes of patients, i. e., nervous women and children, where consciousness of the operation will enhance the shock, and there is little probability that it can be applied to the higher portions of the spine without permanently increasing the dangers. On the other hand, there are a large number of cases where renal, cardiac and pulmonary disease exists, in which this method is far less dangerous, even with our present knowledge, than general anesthesia, and he also believes that the method will be perfected, giving us a less toxic drug with equal efficiency. Other advantages are that the patient can often give valuable aid during the operation and can be consulted in regard to more extensive measures than were originally intended. The usual after-effects of ordinary anesthesia are generally absent and shock in the properly selected cases is less than often occurs after general anesthesia.

39. **Unclean Mouths.**—The dangers from mouth bacteria in producing dyspeptic and other symptoms are noticed by Fletcher, as also the dangers from more virulent organisms. The mouth can not be kept absolutely clean from disease germs, but they can be gradually reduced in number by hygienic treatment, securing the best possible development of the teeth and glands, the use of antiseptics and the prohibition of consumption of such foods as specially foster the growth and development of fermentative and putrefactive germs. The

fermentation of carbohydrates is specially noticed as the cause of acid fermentation, destroying the teeth and favoring bacterial growth. We can not disuse them altogether, but they can be reduced to a minimum. He thinks that the alkaline antiseptics are absolutely necessary to properly cleanse the mouth and should be applied to it at least twice a day, even in the best conditions, and two or three times as often with the majority of persons.

42. **Seborrhea.**—After noticing the views of authorities on the subject, Loth endorses the opinion of Elliot that the only true seborrhea is the condition usually referred to as seborrhea oleosa, which may occur not only on the scalp but also on the face, sternum, interscapular and genital regions. Any inflammatory process which would develop on such a surface would be characterized by features of true seborrhoic eczema and syphilitic or psoriatic lesions similarly modified. Seborrhea does not produce eczema, but acts only as a predisposing factor. The conditions known as seborrhea sicca, pityriasis capitis, seborrhea corporis, etc., are all degrees of seborrhea dermatitis. We have merely clinical grounds for believing that these affections are parasitic in character. These are the circinate character of the lesions, their marginate outline, peripheral extension while clearing in the center, the evidence of infection derived from brushes used by a person having the disease, the spreading from one member of a family to another and the response to antiparasitic remedies.

43. **Trigeminal Neuralgia.**—Hughes protests against too much surgical treatment of trigeminal neuralgia and in forty years' practice in cases that he has had the chance to steadily treat, he has yet to see the first go to the surgeon. His chief reliance in neuralgia, especially sciatica and facial, has been on belladonna or atropin, strychnin, large doses of quinin and more recently hypoquinidol, which is a phosphate of quinin. He has also supplemented this with persistent galvanization of the affected nerve tracts and some form of bromid, the hypophosphites of iron, and gelsemium in green root tincture for direct anodyne effect. He uses locally, ether, menthol, heat and electricity. In many cases also he has used Fowler's solution and coal-tar anodynes. In neuralgia there is a peculiar state of special aptitude to pain in the nervous system; there is weakness and proneness to become affected by cold, etc., that would in other cases be harmless. He draws the line on uterine diseases as the direct cause, not attributing neuralgia to them. As regards surgical operations, he is conservative. He thinks that the complete removal of the Gasserian ganglion should be undertaken only as a last resort. He objects to this procedure: 1. Because of the curability of the disease by medication if rightly employed, in many cases where sufficient vital stamina remains, such as would withstand the ordeal of ganglion extirpation. 2. Because trifacial neuralgia is not a disease exclusively of the ganglion. 3. Because it appears to be a disease not confined to the fifth nerve or the beginning at the Gasserian ganglion. It is a morbid state of the sensory nervous system with characteristic trigeminal manifestations and not exclusively a local disease. 4. Because as good an effect can be obtained by rest and recuperation. 5. Because of the trophic irritative or paralytic sequelæ in the cornea and face, the herpes, ear and jaw involvement, ptosis and fourth and sixth nerve paralysis and, finally, the mortality of operation in some cases. The infection which follows the perforation of the antrum, and the shattered health of many surviving also seem to forbid it. The fact that power of tension of the tympanum comes from the fifth nerve and otic ganglia is not considered as it should be by surgeons. His suggestion for a neurosurgical plan of successful treatment of trifacial neuralgia when neurotherapy fails would therefore be this: Mentally prepare the patient for its radical relief by securing hopeful consent to a combined surgical and neurologic treatment. Put her or him in bed, give chloroform, extirpate the involved peripheral nerves if you wish, keep both the eyes closed—not necessarily by stitching—for the same length of time as one is kept closed by stitching to prevent the eye sloughing, so likely to follow Gasserian ganglion extirpation without it. Keep the eyes closed to secure brain and nerve center rest. Keep visitors away from the patient, maintain absolute brain and neural quiescence, such as follows the operation, by appropriate medication, and maintain at least a six to ten weeks' treatment on the lines above indicated. With this plan put in faithful practice he thinks Gasserian ganglionotomy would take its place among the lost arts.

45. **Tubercular Peritonitis.**—From a study of the literature, Neff concludes that tubercular peritonitis is a disease to be treated surgically by laparotomy, rapidly and carefully performed. The danger is slight, the mortality being less than 3 per cent. As regards the theory of the curative effect of laparotomy, he thinks the antitoxin theory of Gatti the most rational, though several of the various assigned causes may combine. Sepsis is not apt to occur on account of the pathologic changes that have taken place in the peritoneum, and tubercular infection of the wound is always absent. Antiseptics are useless and drainage should be avoided for its tendency to permanent fistula. Most of the deaths after the operation have been due to a general tuberculosis or tuberculosis of some other part. The successful treatment of this condition depends on the diagnostic ability and good judgment of the surgeon.

48. **Jamaica Ginger Amblyopia.**—Dunn reports two cases of this condition, the only previous cases that he has learned of being those of Thompson and Woods. See THE JOURNAL, XXXVI, p. 34.

58. **The Esophageal Glands.**—Two varieties of these glands, the submucous, which has already been recognized, but the other variety entirely distinct from this, are described by Hewlett, from their situation as superficial to the muscularis mucosa. They occur mainly in two localities, in areas in its upper portion and near the cardiac orifice where they extend a short way toward the stomach, being replaced by typical fundus glands, and they have been grouped by some with the gastric glands. Hewlett describes the structure of these glands in detail, noticing the previous observations of Rudinger, Schaffer and others pointing out their distinction from the submucous glands and raising the question as to the possibility of their giving rise to carcinoma. He has collected six cases of adenocarcinoma of the esophagus, to see if their location bore any relation to these glands, but did not find them situated within the usual limits of the latter.

59. **False Diverticula of Intestine.**—By a true intestinal diverticulum is understood one whose walls are composed of the entire thickness of the intestine. A false diverticulum, on the other hand, is a hernia of the mucosa and submucosa through the muscular wall and consists only of mucosa and serosa with intervening connective tissue. It is also desirable to distinguish between congenital and acquired diverticula, but the false are always acquired. Their etiology is somewhat obscure. Traction has been suggested, but it is not generally accepted as the cause. For a long time it was held that they were due to increased intestinal pressure, feces, gas, etc. Klebs has suggested that they may occur with growth of the mesentery, in length outstripping that of the blood-vessels, or more probably with traction in later life upon the mesentery by the intestine. The funnel-like attachment of the ventral wall to the entering mesenteric vessels becomes converted into diverticula. The greater frequency of intestinal diverticula in elder and obese persons supports these later views. Other authors have attributed the origin of diverticula to "pulsion" rather than traction and Hansemann has defined more precisely the vascular relationship. It has been shown by Heschl that the intestine ruptures under pressure at the point where the diverticula are found. Experiments by Good and Hanau have produced the same formations. Senility favors these conditions and various other etiologic factors favor the normal lessened resistance. Chronic constipation may be considered a predisposing factor. Fatty degeneration of the muscularis has been mentioned. Separation of the muscular fibers of the duodenum by the common bile-ducts favors diverticula in that part of the duodenum, stenosis leading to increased intestinal pressure and in general sluggishness of the intestinal

functions may produce it. These are factors unconnected with clinical symptoms and only discovered postmortem, but in some cases pathologic processes have followed, such as ulceration and inflammation due to filling of the diverticula with feces, peritonitis, etc. One of the favorable terminations is an increase in the connective tissue element, but this is rare in these acquired formations. Fischer reports and discusses a number of cases of interest as bearing on the etiology and pathology.

62. **Islands of Langerhans in Chronic Pancreatitis.**—The conclusions of Opie's article are: 1. That congenital syphilitic pancreatitis retards the development of glandular acini but does not affect the islands of Langerhans. Embedded in the stroma, but not invaded by it, the latter maintain their continuity with the small ducts and acini with which they have a common origin. 2. Two types of chronic interstitial inflammation affecting the development are distinguished: *a*. Intralobular pancreatitis localized chiefly at the periphery of the lobule implicating the islands of Langerhans only when the sclerotic process is very advanced. In pancreatitis following obstruction of the ducts the islands long remain unaltered though embedded in dense scar-like tissue. *b*. Interacinar pancreatitis. In this type the process is diffuse, invading the lobule and separating individual acini; the inflammatory change also invades the islands. 3. Relation has been observed between lesions of the islands of Langerhans and the occurrence of diabetes mellitus. In one out of eleven cases of intralobular pancreatitis mild diabetes occurred. Sclerosis in this case followed obstruction of the ducts by calculi and was far advanced and affected the islands of Langerhans. 4. In two of the three cases of intracinar pancreatitis diabetes was present. The third case was associated with hemochromatosis, which at the latter stage is associated with diabetes from pancreatic lesions. In the fourth case of diabetes, hyalin deposit between the capillaries and the parenchymatous cells had so completely altered the islands of Langerhans that they were no longer recognizable.

66. **Spinal Tuberculosis.**—Wiener insists on the importance of early diagnosis of the treatment and the need of paying special attention to reflex spasms of the dorsal muscles. The conventional plaster-of-Paris jacket should not be relied on. Permanent extension is the reliable measure. He does not think much of forced correction of the spine in tuberculous deformity unless in cases where the deformity is of recent date.

67. **Addison's Disease.**—Willson reports a case of Addison's disease and discusses the pathology and symptoms. He thinks that the symptoms are best accounted for by the combined effects of suprarenal inadequacy, and sympathetic irritation, either functional or organic. He compares adrenals in their influence on the system to the sexual glands, both atrophying in old age and raising blood tension.

70.—See abstract in THE JOURNAL of January 12, p. 126.

80. **Syphilis and Associated Affections.**—The relation of syphilis to other disorders is stated by Bulkley, who recognizes that various affections may complicate a specific disease. There may be a simultaneous or successive infection, but there is need of more definite microscopic studies in regard to the ordinary infections of specific lesions. As regards infection of general disease, he finds that variola seems to aggravate syphilis while it exists, according to some observers, and others have seen syphilitic lesions disappear during the course of smallpox. The testimony, therefore, is somewhat varying. As regards erysipelas there is some evidence that it has a counteracting effect on syphilitic virus. There is, however, a lack of experimental and clinical observation. Measles and scarlatina seemed, according to Mauriac, to hasten the eruption; typhoid may temporarily affect specific eruptions. The subject is worthy of further observation. Other disorders like syphilis and malaria, syphilis and diphtheria, tuberculosis, lepra, and sepsis are all noticed. Bulkley concludes that in erysipelas there seems to be an antibiosis, as cases are recorded where erysipelas appeared to be curative. The toxins of some of the other infectious diseases seem to have some effect in arresting the progress of syphilitic lesions in their early stages, but as their effects pass off the virus reasserts itself. Metabiosis, where one organism prepares or paves the way for another, seems to be indicated in malaria, as it temporarily renders the subject peculiarly liable to severe symptoms in syphilis. Symbiosis where the two morbid actions assist each other, is illustrated by tuberculosis. Lepra and septic conditions aggravate both primary and later manifestations, and many cases are recorded where the pus-producing micro-organism was found in connection with syphilitic lesions. He suggests that it is worth considering whether the unusual severity of certain cases is not largely due to mixed infection. The paper concludes with a lengthy bibliography.

81. **Wheal Lesions in Syphilis.**—The absence in American literature, of mention of the wheal type of syphilitic lesions, is noticed by Klotz who reviews certain authorities and his own observation showing that such do occur. The appearance of wheals is generally supposed to be due to an angioneurosis, but the author suggests the embolic process which would account not only for the appearance of patches of syphilis but for the primary localized syphilis, for which, heretofore, we have not been able to offer a satisfactory explanation.

82. **Unusual Phenomena of Syphilis.**—Zeisler reports a case of othematoma occurring without any known cause, in a physician who had been accidentally infected with syphilis. It promptly disappeared under administration of iodid of potassium, without causing any injury, save a slight thickening of the cartilage in the locality. About six months after the occurrence of this accident the patient had symptoms of Meniere's disease and has since had peculiar nervous phenomena, which possibly suggests some pathologic alteration at the base of the brain. Zeisler suggests, therefore, the possibility of othematoma being due to some central origin.

97. **Bromids.**—Clark regards bromids only one of the many drugs to be employed in epilepsy, but it is the one par excellence for treating the seizures. The formula which he considers the best is the elixir of the triple bromids, containing 5 gr. each of potassium bromid, ammonium bromid, and sodium bromid to a dram of simple elixir. Every possible precaution to prevent brominism must be taken. The organism must be kept at the highest functional state; hot and cold baths, massage and electricity should be given. He orders prolonged hot baths in patients in good condition, twice each week on retiring, and a cold shower bath and a friction rub every morning on rising. He allows coffee, but no alcoholic stimulants in connection with these cold packs. The bowels must be watched, mouth kept clean, and any signs of bromid intoxication be promptly treated. When the bromid salts can not be given in high doses, he uses the bromids and bromin in emulsion, which is less irritating to the intestinal tract, not constipating and less toxic. It also seems more lasting in its effects. The greatest adjunct to the bromids, however, he thinks is the method which he calls hypochlorization or salt starvation. This was introduced by Toulouse and the *rationale* is simply to substitute bromin for chlorin in the tissues, both chemically and physiologically. Linossier, in investigating the subject on animals, found that bromhydric acid should be substituted in the stomach for chlorhydric acid. Bromin is not a foreign substance, but is a true mineral substance of the body. It is difficult, however, to get epileptics to discontinue salt altogether, so semistarvation of salt is all that can be expected of them. Bromid is taken into the system more readily as salt is dispensed with. One of the best and easiest ways of carrying out this adjunct of bromid treatment is the establishment of a milk diet with occasional removal to a mild salt diet, and Clark gives a dietary modified from Toulouse. Cases are quoted, and in conclusion he summarizes as follows: 1. Bromids still hold a very prominent place in epileptic treatment. 2. Tonics must be given constantly while administering bromids. 3. Bromid salts should be given gradually to find the epileptic's sedative level. 4. Baths, high enemas, alimentary antiseptics, massage and electricity are absolutely essential to successful bromid medication. 5. Bromin is a worthy successor to bromid in many cases. 6. Salt or semisalt starvation is a great adjuvant to the bromid treatment.

98. **Rheumatic Manifestations.**—Richy advocates the use of salophen in rheumatic symptoms and reports two cases, one of rheumatic pericarditis and the other of joint rheumatism treated with this drug, beginning with 10 or 15 gr. and gradually reducing the amount. He also finds this almost a specific in influenza. He has also used it to advantage in headaches dependent upon rheumatic diathesis and sciatica, in tonsillitis and scarlet fever.

103. **Formaldehyde.**—The different methods of disinfecting by formaldehyde are described by Bissell, who gives a report of experiments made by himself with various cultures and sums up the application of formaldehyde to household disinfection as follows: 1. It is the most satisfactory of the gaseous disinfectants. 2. Its penetrating powers are extremely slight. 3. A certain degree of moisture facilitates its action. 4. It should always be supplemented by a cleansing process.

113. **Leprosy in Hawaii.**—Davis gives a very good description of the Molokai leper colony, which he visited in 1898; the history of leprosy in the islands, with tables of the mortality, etc., is given. He thinks the low moral standing of the natives, habits of using the same beds, clothing, and pipes, also the fact that the leper was never an outcast among them, account for the spread of the disease. Vaccination also during the epidemic of smallpox in 1852 and 1853 undoubtedly helped to spread the disease. The native Hawaiians have no special dread of the disorder and many cases are on record where natives have tried to contract the disease in order to join friends or be provided for in the Island of Molokai. As regards treatment, he is pessimistic. He finds nothing that is curative and practically no medicine is administered in the leper settlement.

119.—See abstract in THE JOURNAL, title 42, p. 403.

121. **Posterior Uterine Displacements.**—The recapitulation of Chase's article is as follows: 1. Posterior deviation with fixation from adhesion is usually a serious menace to health and often a barrier to childbearing. 2. This condition can be best treated by laparotomy. 3. After the adhesions have been severed the cure should be completed by maintaining the uterus in an anterior position: *a*, by intraperitoneal shortening of the round ligament; *b*, if this is insufficient resort should be had to anterior abdominal suspension of the uterus. 4. Experience, while not settling all points, demonstrates that efforts to maintain the uterus in an anterior position, either by ventrosuspension or fixation, are from the uncertainty of the degree and extent of the adhesion not devoid of danger in case of conception, which should be considered, and, in certain instances, guarded against. 5. Ligation or resection of the Fallopian tubes is a more rational procedure than ovariotomy for the prevention of conception and more justifiable, as it does not unsex the woman and saves her from a premature menopause and its unpleasant consequences. 6. The value of these methods of treatment of posterior deviations is amply demonstrated and their employment should be more generally adopted.

123. **Uterine Curettement.**—Moriarta considers curettement in septic and sapremic conditions as complications of the puerperal state. He specially dwells on the importance of thorough removal of infection spreading retained tissues, the necessity of careful and conscientious measures in the operation of curettement, the danger of perforation of diseased uterine wall, the chances of a long and patulous cervix leading to mistakes, and gives the details of the technique. He uses anesthesia according to the conditions, sometimes he employs it and sometimes not. After scraping and the removal of new adhesive tissue, which is done with a good-sized Rhamstetter irrigating curette, he follows it with a small-sized curette, going over the walls slowly and methodically. Following the scraping he uses a hot solution of bichlorid—1 to 2000—followed by a saline solution of sterile water; he then packs with iodoform gauze. If large quantities are needed it is well to wash it to prevent iodoform poisoning. The gauze is removed at the end of twenty-four hours and usually not replaced.

125. **Intrapelvic Hemorrhage.**—Manton reports a case of excessive uterine hemorrhage due to a pathologic new growth, a fibroma, in the lower portion of the broad ligament encroaching upward with involvement of tube and causing degeneration and destructive changes in the blood-vessels of the part.

FOREIGN.

The Lancet, February 2.

Considerations Touching the Pathology and Relations of Diabetes. W. HOWSHIP DICKINSON.—The morbid anatomy of diabetes, according to Dickinson, is as yet somewhat uncertain. We have nothing that serves to define the disease, such as the hepatization of the lung in pneumonia. The most frequent morbid appearance is extravasation of the blood in the perivascular canals of the brain. Of twenty-two diabetic patients, eight displayed this phenomenon. Other signs of morbid action are the enlargement of the perivascular canals, giving the white matter a cribriform appearance, and the abnormal contents of these leucocytes and amorphous debris. In the cord we sometimes have dilatation of the central canal. In two out of the eight cords which he had, this was present, and also a peculiar hyaline modification in the lateral parts of the gray horns. R. T. Williamson has published cases of diabetes with evidence of degeneration of the posterior column. In the liver we have certain characteristics varying from health. The organ is large, red, hard and congested and the veins contain coagula. Dickinson does not dwell on the consequential changes of diabetes, such as the inflamed states, etc., but passes to the clinical causes. He mentions emotional disturbance, anxiety, and notices that locomotive engineers are specially liable to the disease, probably owing to the anxious nature of their work. Heredity is a most prominent cause and the association of diabetes with gout or hereditary disorders is notable. The clinical association on the side of the nervous system, of loss of the patella reflex, is noted. This may be connected with some change in the cord or nerves, though morbid changes have not been found in the peripheral nerves. Peripheral neuritis has been regarded, however, as one of the results of the toxemia of diabetes and this may account for the symptom. Another nervous phenomenon of diabetes is the occurrence of excess of earthly phosphates in the urine, especially phosphate of lime, which is unexampled in any other disease. He has placed on record cases where the daily increase of lime exceeded 3 grams. Still another symptom is the peculiar dusky redness of the complexion, often seen in advanced and severe cases. The author's investigations at the Bethlehem Hospital, of the urine of fourteen out of 106 lunatics, gave appreciable reductions of copper, together with some degree of darkening with liquor potassæ, but in no case marked diabetic characters. He is inclined to think that glycosuria accompanies insanity in a slight degree, and in a small proportion of cases. We are not yet at the bottom of the pathology of diabetes; what we know points to the undoubted origin of the disease in mental causes. Its association with larger excretion of phosphate of lime, the loss of the patellar reflex and the glycosuria of insanity are significant as to its relations with the nervous system.

Hemorrhagic Diathesis in Typhoid Fever and Its Relationship to Purpuric Conditions in General. ALBERT G. NICHOLLS AND G. EVERETT LEARMONTH.—A number of examples have been recorded of hemorrhagic complications of typhoid, and the authors notice the opinion of authorities in regard to these. The hemorrhagic type was first brought to notice by the earlier French school, notably by Trousseau, but the cases are exceedingly rare. They report, in elaborate detail, the history of a case with postmortem and bacteriologic examination of the blood, peritoneal cavity and kidneys. The case was atypical in that the intestinal lesions were most marked in the large bowel, the spleen was small and there was a mixed infection with staphylococcus albus. One main factor of the hemorrhages was a fatty degeneration of the basement membranes of the capillaries and the various endothelial cells, especially notable in the lungs and kidneys. They found but few cases recorded of general hemorrhagic diathesis in typhoid. As regards the positive conditions, they notice the views of Gerhardt that the hemorrhage tendency has been more frequently

observed since the introduction of the cold bath treatment. A too rigid commitment of the patient to an animal diet may be an important cause, as tending to a scorbutic condition. Its appearance seems to be most common in children and early adult life. The vast majority of cases are found in those suffering from a severe form of typhoid, the patients are much prostrated, temperature high and heart weak. The anatomic lesions differ very little from those of ordinary typhoid, but the authors are inclined to credit the action of special microorganisms as having to do with the symptom. The condition is a serious one and the treatment is necessarily symptomatic.

Treatment of Typhoid Fever. FREDERICK J. SMITH.—In cases where the diagnosis is certain the author says there are two general principles of treatment: 1. Examination of the stool. 2. The appetite of the patient. He maintains that one stool should be examined every twenty-four hours during the active course of the disease, to determine whether there is undigested milk or other food, blood or sloughs which are significant, or a due proportion of feculent debris. He has made it a cardinal rule to allow the appetite to be the sole arbiter of the diet, providing vomiting, hemorrhage and abdominal distention are not present. The temperature he ignores. In the early stages of the disease, where the appetite is in abeyance the temporary administration of water as the only food has given good results. We do not know definitely just how long this should be continued, but he has kept it up for four or five days with the best results, and the wish of the patient for food is the only reason he had for stopping it. Milk is the standby for diet when food is given, but it should be administered in a form where balling and curdling does not take place, for example liquid custard or even baked custard if broken up fine, in bread and milk, and he would allow eggs slightly boiled or poached at any stage. All commercial foods he thinks are of doubtful value. Meat, if given, should be put through a sausage machine or minced as fine as possible. The patient may be allowed to nibble stale bread to keep the jaws exercised. The foods to be avoided are those which remain in small hard particles on leaving the stomach. The quantity and time must be regulated, about once in four hours in small quantities, but the patient should not be awakened for the purpose of giving food; sleep is more important. Between meals nothing should be given but cold or hot water, as preferred. Of the complications, vomiting, as an exhausting symptoms, should be avoided if possible. Tympanites is an ominous symptom and on its discovery all foods should be stopped, excepting water. His own plan is to at once administer 2 drams of sulphate of soda every two hours until the bowels are acting freely. It usually follows constipation. He also orders an ice-bag to the abdomen, and resorts more persistently to chlorin water or salol as an antiseptic. Constipation need never be permitted to persist. He uses sulphate of soda and calomel as the usual laxatives. If the diarrhea should be excessive, he would investigate the food and stimulants; if due to indigestion, stop all food but water. If there is much sloughing material, showing signs of ulceration, the symptom is bad. He has used an enema containing opium, nitrate of bismuth and ipecacuanha. Pyrexia can be best treated by tepid sponging. He does not favor cold baths as a rule, though in some cases they may be indicated. If starvation and opium are found to be useless in hemorrhage nothing else is of the slightest use. As to drugs, he has a preliminary routine treatment, giving 2 gr. of calomel at once, following it with 1 gr. every night. Mixtures containing carbolic acid or chlorin water are given, or he gives salol in water three times a day. Of other drugs he uses practically none excepting in emergencies. Alcohol, the thinks, is unnecessary, though a little may be allowed those who are in the habit of taking it. He does not object to beer drinking. The import ance of the physician giving personal attention to the question of cleanliness is emphasized, and he expresses the opinion that the future of therapeutics in typhoid will be in serumtherapy.

Intraperitoneal Method for Radical Cure of Inguinal Hernia. T. H. WELLS.—The writer describes an operation performed by Mr. Symonds, in inguinal hernia, which he sums up in seven stages: 1. An incision 2½ inches long in the linea semilunaris, ending over the external abdominal ring and passing through the skin, fat and superficial and deep fascia. 2. Deepen the upper 1½ inches through the abdominal muscles, transversalis fascia, and the subperitoneal fat, and having arrested all hemorrhage, open the peritoneal cavity. 3. Explore the sac with the finger and remove any gut. 4. Insert forceps along the palmar surface of the finger, seize the apex of the sac and invert it, bringing it out into the upper wound. 5. Stitch the sac, after giving it a couple of twists on itself to obliterate its cavity, to the peritoneum. 6. Stitch up the external abdominal ring. 7. Close the wound by bringing the structures layer by layer into accurate apposition. The advantages are its quickness, obliteration of the neck of the sac high up, the inverted sac aiding in forming a firm scar. The sac and its contents are explored and, if necessary, the sac opened below quickly and safely. The incision allows any methods of closing the inguinal canal and external ring carried out as the operator may desire.

Bulletin de l' Acad. de Med. (Paris), January 8 and 22.

Total Resection of the Stomach. J. BOECKEL.—This is the first gastrectomy done in France and the fourth on record. The operation lasted 1½ hours; the patient made a rapid recovery, was up the twenty-second and left the hospital the thirty-third day. She had previously been much emaciated by the carcinoma which rendered the resection necessary, and after its removal gained seven pounds in a month, and thirteen more in another six weeks. The stools are regular and normal. She eats the food at the family table with no restrictions except quantity, cabbage and sauerkraut. A week after leaving the hospital her lunch was veal, carrots, fried apples, wine, biscuits and grapes, with three cups of black coffee, according to a letter received from her. The removal of the entire stomach is an operation comparatively simple and the marked and regular increase in weight testifies to perfect and regular assimilation without it. Boeckel is inclined to believe that its application is not limited to cases of carcinoma. The first point in operating is to free the greater curvature of the stomach by severing the gastro-colic ligament; then to detach the upper portion of the stomach between forceps, one placed immediately above or below the cardia; this is followed by freeing the lesser curvature by severing the gastro-hepatic ligament. The lower portion is then liberated after section of the upper portion of the duodenum between the forceps. The last step is the anastomosis of the cardiac ostium with the duodenum and suture of the abdominal wall without drainage.

January 22.

Obstetric Spinal Analgesia. GUENIOT.—Spinal cocainization has been employed in 60 obstetrical cases in France. A review of these shows that the small amount of cocain required—1 cg. of cocain in a 1 per cent. solution is ample—obviates the inconveniences sometimes observed in surgical operations. This amount induces complete analgesia below the umbilicus, suppresses the pain caused by the contractions of the uterus and the passage of the child, and far from interfering with delivery, seems on the contrary to accelerate it; it imparts greater energy and regularity to the contractions and also enables the woman to make more energetic and more sustained efforts as they are painless. The analgesia lasts from seventy minutes to two hours. No serious danger for mother or child has been observed in consequence, the only phenomena of intoxication noted being cramps or slight tremor in the limbs, transient headache, slight vomiting and a slight rise of temperature. At the same time, it is best to avoid using this method of anesthesia in patients with lesions of the heart or large vessels, chronic affection of the respiratory apparatus, or disease of the nerve centers, especially brain tumors. It is also contraindicated when absolute asepsis can not be secured. Further special contraindications are extremely rapid course of delivery, frequency and energy of contractions of the uterus or exaggerated tension of the organ, or the necessity of manual intrauterine intervention. The cocain evidently has a pro-

nounced stimulating and regulating action on the contractility of the organ. If this fact is confirmed by further experience it will give the drug a high place in obstetrics. While it acts like ergot, it does not tetanize the uterus like the latter, and leaves the cervix permeable, at least to a certain extent. The indications for obstetric spinal cocainization are four: All obstetric operations which demand anesthesia, with the exception of those requiring the introduction of the hand into the cavity of the uterus; excessively painful delivery; extremely protracted course of the latter in consequence of weakness and irregularity of contractions, and lastly, a tendency to hemorrhage from any cause, inertia of the uterus, placenta previa, etc. The decrease in the amount of blood lost during delivery is extolled by Doléris as one of the chief advantages of obstetric laparotomies, and possibly also the preservation of the mental faculties. Doléris states that he is now aiming to make parturition altogether painless, but Guéniot doubts whether this will prove an advantage on the whole.

Bulletin Medical (Paris), January 23.

Dialyzed Raw Meat. BATTESTI.—A process is described which converts raw meat into a bouillon containing one-third more of the nutritive substances than the same amount of chopped meat, while the stomach is completely relieved of the task of digesting it. Fresh beef or mutton is chopped and put through a sieve, and 200 gm. of tepid water containing 5 gm. of hydrochloric acid are poured over it. In a few minutes 2 gm. of pepsin are stirred into the mixture and the whole is cooked at 38 C. for five to six hours. The product is a reddish fluid with a slightly acid and bitter taste, which can be corrected by adding a pinch of sodium bicarbonate.

Raw-Meat Muscle Serum. CH. RICHET.—The juice derived from meat submitted to a pressure of 25 kilograms to the square centimeter, cured dogs with experimental tuberculosis, in Richet's tests, as mentioned in THE JOURNAL at the time. He calls this fluid "myoserum," and states that the curative effect is evident only when as much is injected as 20 c.c. to the kilogram of body weight. He now announces that this myoserum, injected subcutaneously or into a vein, has marked toxic properties, killing animals when employed in the proportion of 5 c.c. to the kilogram. The juice commences to putrify in an hour or two in warm weather and, even when kept at the freezing-point, spoils in a few days.

Berliner Klin. Wochenschrift, January 14 and 21.

Modern Treatment of Diphtheria. T. ESCHERICH.—In this review of what has been accomplished by antidiphtheria serum, Escherich gives his own experience, showing that while 54.8 per cent. of his patients with diphtheria—115 in all—between 1890 and 1894 were cured, since then 86.92 per cent. of 1147 patients have recovered. This includes 80.42 per cent. of recoveries in 378 cases of progressive croup and 57.38 per cent. in 176 cases of septic-toxic variety. None of the latter was cured before 1894, in his experience. He gives 1000 to 1500 units in localized diphtheria, double this amount in progressive croup, and three or more times this amount in the septic-toxic form, but as much as 20,000 units have been given by some physicians. The serum exanthemata have been reduced from 11 to 3 per cent. of the cases. He has had one fatality similar to the sudden death of Langerhans' child, that attracted so much attention a few years ago. A boy of 11 months was given a prophylactic injection on account of sudden laryngitis with symptoms of stenosis requiring intubation. He died in a few hours, with symptoms of heart failure. The heart was found very much dilated and the thymus soft and juicy, weighing 15 gm.

Succussion Sign of Kidney Affections. S. GOLDFLAM.—Pain is a constant and unfailing sign of surgical affections of the kidneys, according to Goldflam's experience, but it is not always easy to elicit the pain. Ballottement is instructive, but even this fails at times. If the patient sits or stands, the trunk bent forward, and the physician strikes the lumbar region with the ulnar side of his fist, lightly but abruptly, perpendicular or lateral to the mass of the sacrolumbar muscles, a concussion of the region is produced which is painless in normal conditions and in certain kidney affections, but in surgical renal affections it induces pain similar to that caused by bimanual palpation or ballottement. No pain is induced by the succussion when the lesion is located in the gall-bladder, spleen or in any organ except the kidney.

Centralblatt f. Bakteriologie (Jena), December 8, 24 and 28.

Theory of Disinfection of the Hands. H. MARX.—THE JOURNAL mentioned at the time, Marx's announcement that the accumulation and localization of the Babes-Ernst corpuscles in bacteria is a visible standard for their virulence and vitality. He now announces that the aim of disinfection of the hands should be to render them a destructive soil for microbes, not necessarily to remove all the germs, but merely to prevent their further development. The standard for these conditions is the presence or absence of the Babes-Ernst corpuscles, and this should be the gauge for disinfection of the hands.

Requisites for Formalin Disinfection. C. SPENGLER.—Tubercle bacilli in sputa are not killed by formalin disinfection as usually performed. Spengler's experience at Davos has shown him that complete destruction of the bacilli is certain if the room is kept at 25 C. during the disinfection, and if the infected substances are moistened thoroughly and give off moisture under the influence of the fumes. The formalin must contain .5 to 1 per cent. formic acid.

December 24.

Microbes in Venous Thrombosis. M. JAKOWSKI.—Venous thrombosis has been noted after typhoid fever, croupous pneumonia, puerperal affections and general septic pyemia. Two cases have been published consecutive to gonorrhea, and Korzan has recently reported a case of pyemia in the course of crural thrombosis during pregnancy. Jakowski has been experimenting on animals, injecting diphtheria or typhoid bacilli and toxins and then applying a ligature to the limb. The toxins alone or combined with constriction failed to induce thrombosis, and the tests were constantly negative in case of constriction alone. But injection of the bacilli and constriction resulted in the production of more or less thrombosis in every case. The bacteria probably lodged at some slight lesion in the vessel, possibly where the constriction was applied, and there elaborated their toxins. These toxins in turn acted destructively on the morphologic elements of the blood, breaking them up and liberating the fibrin ferment, thus causing the formation of a clot.

December 28.

Polymorphism of Water Vibriones. J. H. F. KOHLBRUGGE.—This author has succeeded in isolating from water several varieties of vibriones which resemble the vibrio of cholera in every respect and possess, in addition, the property of changing their shape. In water they are vibriones; on agar they become rods and cocci and resume the vibrio shape when replaced in water. The lively movements in each phase show that the changes are not degenerative processes.

Centralblatt f. Chirurgie (Leipsic), January 19.

Sterilization of Silk Catheters. M. W. HERMANN.—The solution of ammonium sulphate, which Elsberg recommends for the sterilization of catgut (See THE JOURNAL, XXXIV, p. 1587), has proved a remarkably simple and effective method of sterilizing silk catheters without the slightest injury.

Centralblatt f. Gyn. (Leipsic), December 22 and January 12

Gangrene of the Lower Extremity in the Puerperium. G. BURCKHARD.—Two cases are described which, with those collected by Wormser, raise the number on record to seventeen. In one of Burckhard's cases, the circulation in the leg was impeded from extravasation of blood owing to rupture of the uterus. All the patients recovered after amputation of the leg, except one, and two succumbed without surgical intervention.

January 12.

Injection of Paraffin for Surgical Prothesis. J. PFANNENSTIEL.—Gersuny's success in treating a case of incontinence of urine by the injection of paraffin was mentioned in THE JOURNAL, January 19, p. 219. Pfannenstiel followed his ex-

ample in a similar case and reports that the results were almost disastrous; the paraffin produced embolism in the lungs and possibly also in the brain, without effect on the incontinence.

Deutsche Med. Wochenschrift (Leipsic), January 31.

Woody Phlegmon. R. MUEHSAM.—This author describes a case of the rare lesion termed ligneous phlegmon of the neck, by Reclus in 1896. It appeared suddenly during convalescence from broncho-pneumonia, in a robust man of 35, accompanied by slight temperature, and was persistently rebellious to treatment for four months, then gradually subsided, the fistula finally closing three months later. No bacteria could be detected in it, nor evidences of actinomycosis. In other cases various bacilli and cocci and actinomyces have been discovered, and the possibility of the latter infection indicates potassium iodid in dubious cases. One of Reclus's patients died from asphyxia by compression.

Heterogenesis of Lactic Acid Bacilli. A. P. FOKKER.—In this preliminary communication, the professor of hygiene at Groningen announces that lactic acid fungi can be cultivated in incompletely sterilized or Pasteurized milk, which can originate only by heterogenesis from the casein. More colonies can be derived from sour milk than according to the microscope, are possible. When the sour milk is filtered in the oven, the filtrate contains more bacilli than when filtered at room temperature. In the latter case a vicarious albuminoid substance is found in the milk in the place of the absent micro-organisms. This albuminoid substance is closely related to casein, and when heated in an alkaline fluid, forms granules. The micro-organisms develop the second day in the incubator before fission of the bacilli occurs, unless the casein is removed, in which case none develops. The phenomenon of heterogenesis can best be observed in incompletely sterilized or fresh milk. Secondary colonies sometimes develop in the midst of the primary colonies, consisting of other varieties of fungi. True lactic acid bacilli cease to develop at a temperature of 60 C., but the lactic acid fungi described above continue to develop in Pasteurized milk. They frequently differ from the familiar lactic acid *bacilli* in certain respects.

Mastitis Adolescentium. R. ADLER.—Besides the case described in this communication, there are only three cases on record in which histologic examination was made. In each of these the gland was normal in structure, and the affection is therefore not an inflammation but a physiologic and possibly atavistic hypertrophy of the mammary gland. The left breast was removed in a youth of 16 years, on account of swelling and pain for several months. There was no secretion. A few months later the patient returned with the other breast in the same condition. Suppuration does not occur in these cases except from secondary infection, the hyperemia offering a *locus minoris resistentiæ*. Adler recommends a celluloid shield to protect the region, fastened with plaster unless extirpation is necessary, abstaining from local remedies.

Wiener Klin. Rundschau, January 20 and 27.

Atypical Initial Symptoms of Tubercular Meningitis. J. ZAPPERT.—Wherever the meningeal exudation makes its way out, the adjoining portion of the cerebrum will show most marked alterations at the autopsy, and possibly also encephalitic destruction. The fresher the exudation and the irritation of the pia mater, the less pronounced the lesion. The anatomist is able, from the postmortem findings, to reconstruct the clinical picture. In case of primary lesion of the total convexity, convulsions must open the syndrome. Aphasia must follow much involvement of Broca's speech convolution, and disturbances in the arm and face must result from a lesion in the cortical centers for the facialis and arm. The muscles of the face on the opposite side and in the further course of the affection, the upper extremity, the leg and, when the lesion is on the left side, the speech, are affected in turn. The cortical localization is clearly indicated by paralysis or cramps in one arm, and also when the symptoms include the face or limb of the same side. Zappert shows, by a number of examples, the actual occurrence of these phenomena as the early symptoms of tubercular meningitis. Cortical centers whose localization is less definitely established than the motor centers may predominate in the clinical picture, as, for example, when the motor disturbances are accompanied or preceded by sensory phenomena. He has had occasion to observe disturbances of the eye muscles and vision due to a lesion in their respective centers, hemianopsia accompanied by unilateral convulsions, in the incipient stages of tubercular meningitis. The primary commencement of the affection in the spinal membranes has also been clinically and anatomically demonstrated.

January 27.

Spray for Rinsing the Bladder. O. KRAUS.—The tenacious secretions in certain forms of cystitis, etc., are very difficult to remove from the bladder, and the crevices still contain mucus after the most careful cleansing. This is obviated by the instrument devised by Kraus, which rinses the organ with spray under a pressure of 2½ atmospheres. Carlsbad water is efficient for the purpose, the force being supplied by liquid carbonic acid.

Wiener Klin. Wochenschrift, January 17 and 24.

Relations Between the Nose and the Female Genital Organs. A. SCHIFF.—By cocainization of the four genital spots in the nose Schiff succeeded in curing 34 out of 47 women of dysmenorrhea. Mechanical and hysterical dysmenorrhea were not affected, but all the cases of nervous origin, with or without palpable lesions in the genital sphere, and also the extramenstrual sacral and abdominal pains were cured. The facts observed indicate that the pain in many cases of dysmenorrhea and similar conditions is not actually genital but originates in menstrual or other irritation of the genital points in the nose, and is projected thence into the sacral and abdominal regions. This cocainization should always be done as a differentiating measure in cases of dysmenorrhea in which the pain does not cease with the commencement of the flow, in order to distinguish between the purely genital and the projected pains. In case of a positive result, the genital points should be cauterized or, better still, treated with bipolar electrolysis. The points must be determined through the speculum and thoroughly anesthetized, preferably with a 20 per cent. solution of cocain. He found it possible in a number of women to cause severe pains in the sacral or abdominal region by excitation of the genital points in the nose, thus corroborating the close connection between them. Weil has observed pain appear in the sacral region in men on tamponning the nose, and has cured forty cases of dysmenorrhea by cocainizing the genital spots in the nose, the influence of suggestion being completely excluded. Gomperz has had a similar experience, but found that the pains were never arrested for more than a year, after which they again required intervention. Grosmann has also temporarily cured epilepsy in a man of 45, arresting the seizures for five weeks by galvanocauterization of the inferior turbinated bone, but they recurred later. He has also succeeded in curing neuralgia of the first and second branches of the trigeminus and three cases of acute lumbago in men by treating the nose. In his experiments on animals, excitation of the superior laryngeal or of the first and second branches of the trigeminus nerve, augmented the blood pressure in the left auricle, with dyspnea. This corroborates the connection which has long been noted between asthma and affections of the nose.

Treatment of Typhoid Fever with Jez's Antityphoid Extract. V. JEZ.—In the *Wiener Med. Wochenschrift* of Feb. 23, 1899, Jez first described his extract and reported 18 cases of typhoid fever treated with it. The experience of the last two years has completely confirmed his previous findings, and Eichhorst has also recently reported successful administration of it in 12 cases. The latter remarks: "The rapid improvement in the general condition was astonishing. I applied it only in extremely severe cases, and none of them died. In one case, defervescence occurred in seven days, and in the remainder, in four or five days after commencement of the treatment." The extract has no effect on any disease except typhoid fever. It is entirely harmless and can be administered in large doses, with no after-effects. It diminishes the temperature and strength-

ens the pulse, abbreviates the course of the disease, and diminishes or completely neutralizes the action of the typhoid toxins. It is administered by the mouth and consequently avoids all the inconveniences of subcutaneous injection. The Berne Serum Institute has undertaken its manufacture, which is not a secret process. Rabbits are immunized against the typhoid bacillus and killed the second or third day thereafter. The extract is derived from the organs, spleen, marrow, brain, medulla, spinal cord and thymus, in which the antitoxin is formed as has been demonstrated on man and animals. The extract is a limpid, reddish, alkaline fluid. A tablespoonful is given every one or two hours, and three tablespoonfuls a day after the morning temperature is reduced to 38 c., a total of 400 to 500 gm. in all. The fever shows the effect of the extract in twenty-four hours, and within forty-eight hours changes from continuous to intermittent and, finally, to apyrexia by the end of the second week. This effect on the fever is so constant that 100 gm. of the extract will prove a valuable differentiating measure. The sensorium becomes clear in twenty-four hours, and the patient is conscious, tranquil, and free from pain of any kind, demonstrating that the effects of the typhoid toxins have been neutralized by the antitoxins in the extract. These results, observed in fifty cases, impel Jez to recommend his extract in the most favorable terms. He appends detailed accounts of a typical case treated with it.

Klinitchesky Journal (Moscow), December.

The Eliminating Organs in Typhoid Fever. D. V. NIKITIN.—The intoxication in typhoid fever is made up of the acute toxemia from the typhoid toxin, the chronic endogenous and exogenous toxemia which had previously existed in the patient, and the toxemia from disturbances in metabolism during the disease. The liver and skin are most active in the elimination of these toxins, but all the excreting organs in the body assist in the task more or less, and may substitute each other. The diarrhea in typhoid fever can not be explained exclusively by anatomic lesions in the intestines, but evidently plays a part in the elimination of the toxins. The vomiting also serves the same purpose. Intestinal hemorrhage in the beginning of the disease can not be considered as the consequence of a lesion, but rather as the result of the hyperemia of the intestines, and it serves to eliminate the toxins in the same way as lavage of the blood is applied in acute uremia. The rapid breathing may also be explained as increased functioning of the lungs—augmented ventilation to eliminate the volatile toxic products and increase the absorption of oxygen. The more intense the toxemia, the harder the eliminating organs work. When the latter are not equal to the task, from congenital or acquired weakness or degeneration of the organism, the disease is liable to terminate fatally. The duration of the disease in many cases is determined by the functional capacity of the eliminating organs. The course of typhoid fever, therefore, according to Nikitin's conception, does not depend on the virulence and other properties of the typhoid bacilli, but on the individual properties of the affected organism and on its equipment for the struggle for existence.

Vratch (St. Petersburg), December 29 and January 5.

Importance of Lowered Sensibility in the Causation of Infectious Diseases. A. K. FEDEROLFF.—Scientists have been unable to explain why the chemical products of the vital activity of pathogenic microbes in some cases attract, and in others repel the white corpuscles. Federolff believes that this varying chemotaxis is due to the physiologic condition of the phagocytes rather than to any special properties of the bacterial products. He attributes sensibility and psychic functions to the phagocytes, displayed in their purposeful movements, in their selection of food materials and in their aggressive seizure of the causal agents of infection. If they are benumbed or diseased, then the products elaborated by the bacteria or resulting from their dissolution, fail to incite the phagocytes to their normal aggressive activity. Tests of the effect of narcotic substances on the white corpuscles have demonstrated that their tactile and chemical sensibility are diminished by an anesthetic, exactly as the general sensibility is depressed and the reflexes are abolished by anesthesia. When, from any cause, the products of metabolism accumulate in the blood and lymph spaces, they probably exert a narcotizing influence on the cells and especially on the sensitive phagocytes. As the latter become benumbed and remain passive under this action, their physiologic faculty of producing the alexins—which some claim are bactericidal substances poured out into the blood plasma—is also reduced in proportion. The bacterial products may irritate the blood-producing organs, and so induce leucocytosis, but this is no criterion of the power of the organism to resist infection. The resistance depends on the physiologic condition of the leucocytes rather than on their numbers. In short, Federolff believes that depression from any cause may lead to accumulation of the products of metabolism. These in turn are liable to narcotize the cells—especially the phagocytes—check their functioning, assimilating, oxidations, etc. This allows the germs of infection to develop and elaborate their toxins, unhindered, entailing in consequence some infectious disease.

Queries and Minor Notes.

SECRETARIES OF EXAMINING BOARDS.

JAMESTOWN, TENN., Feb. 4, 1901.

To the Editor:—Please give the address of the secretaries of the State Board of Medical Examiners of California and Missouri.

M. H. L.

ANS.—The secretary of the State Board of Health of Missouri, by which licenses are issued, is L. C. McElwee, M.D., 1113 N. Grand Ave., St. Louis, Mo. The secretary of the California State Board of Examiners is Charles C. Wadsworth, M.D., 1104 Van Ness Ave., San Francisco.

PRACTICE IN CALIFORNIA.

SOCORRO, N. M., Feb. 2, 1901.

To the Editor:—Kindly give the requirements of the State Board of Health of California regulating the practice of medicine in that state, also the name and address of the secretary of the State Board of Health.

J. F. S.

ANS.—A diploma with affidavit, etc., from a recognized medical college, and a recommendation from some physician in good standing with the State Board of Medical Examiners are required. The secretary, whose address is given in the answer to the foregoing query, will furnish the needed application blanks on request.

PRACTICE IN OREGON AND WASHINGTON.

LEBANON, KAN., Feb. 1, 1901.

To the Editor:—Will you inform me as to the qualifications for the practice of medicine in Oregon and Washington? If an examination is required before a state board, please give their address.

W. C. B.

ANS.—The laws of Oregon and Washington are almost identical. In each state an examination is required and the candidate must, in his application, give full data as to studies, previous practice, etc., by affidavit. Fuller information, application blanks, etc., can be obtained from Byron E. Miller, M.D., Portland, Ore., or W. G. Tucker, M.D., Port Townsend, Wash., secretaries to their respective state boards of examiners.

PRACTICE IN ILLINOIS.

PITTSBURG, PA., Feb. 12, 1901.

To the Editor:—Would you kindly let me know through THE JOURNAL the requirements for practicing medicine and surgery in Illinois?

SUBSCRIBER.

ANS.—Application for license must be made in writing to the secretary of the board, Dr. J. A. Egan, Springfield, accompanied with proofs of good moral character and of graduation from a recognized medical college, and an examination must be taken. The examination fee of $10 must also be sent. If the application is satisfactory, the applicant will be notified when and where the examination will be held, and, on passing this, will receive his certificate.

EXEMPTION FROM EXAMINATIONS.

GREEBVILLE, S. C., Feb. 11, 1901.

To the Editor:—Would a medical college, a private institution, whose faculty are members of the state medical association, under whose appointment their state medical examining board was made, be considered reputable when they, by a majority vote, urged the legislature of their state to exempt their graduates from an examination by said board?

L. C. S.

ANS.—The action mentioned by our correspondent may be reputable enough from a purely commercial point of view, though we can not say that it would be in a professional sense. It is certainly against the best interests of the profession and of higher medical education. THE JOURNAL has already expressed its opinion in

regard to this case and other similar ones. It was not, however, understood at that time that the faculty was advocating the exemption of their students from examinations. To the outside world it looks like a confession of inferiority on their part; that they are afraid to have their students take the examinations. The only other excuse it could have is that they wish to give additional inducements to attend their institution.

WORK ON PROSTITUTION.

SPRINGFIELD, OHIO, Feb. 9, 1901.

To the Editor:—Can you suggest a work on prostitution, or any source of information in regard to whatever experiments have been made or are being made looking to its restriction or control.

W. B. P.

ANS.—The leading works on the subject are those of Acton and Sanger, the latter the most recent. The subject is a sociologic more than a medical one; the efforts for its restriction are constantly being made; those for its legal regulation or control have not been entirely successful. The matter has been discussed at length, over and over again, and was made the subject of discussion at one of the international congresses held last year, when considerable diversity of opinion was elicited.

New Patents.

Patents of interest to physicians, January 22 and 29:

666,375. Truss. Wm. R. Butler, Richmond, Va.
666,533. Purifying water. Jules H. Lavollay and G. E. Bourgoin, Paris, France.
666,534. Refining perfumes. Jules H. Lavollay and G. E. Bourgoin, Paris, France.
666,431. Electrotherapeutic apparatus. John S. Mead, Buffalo, N. Y.
666,627. Making picric acid. Max Neumann, Wittenberg, Germany.
666,636. Decomposing glycerids. Jonas W. Aylesworth, East Orange, N. J.
666,731. Electromedical eyeglasses. Philibert Balme, Izieux, France.
666,844. Sterilizing device. Frank C. Burgholz, Harrison, N. J.
667,144. Static electric machine. Charles H. Cook, Indianapolis, Ind.
667,127. Apparatus for feeding coagulants to liquids. Anthony Harris, Hunters Quay, Scotland.
666,676. Spirometer. Israel Hogeland, Chicago, Ill.
667,099. Treating and utilizing chlorin gas. Edward C. Paramore, Philadelphia, Pa.
667,100. Apparatus for treating chlorin gas. Edward C. Paramore, Philadelphia, Pa.
666,856. Retinoscope. Elmer L. Ryer, New York, N. Y.
666,703. Apparatus for congealing gelatin substances. Christoph Steilacher, Stuttgart, Germany.
33,998. Design, dispensing cabinet. Horace G. Stripe, New York, N. Y.

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C. L. Bacon, 410 W. Main St., to 220½ Walnut St., Muncie, Ind.
O. E. Beebe, 227 Hermitage Ave, to 235 Ogden Ave., Chicago, Ill.
Marion Burke, 621 N. Cascade Ave., Colorado Springs, Colo., to 969 San Pasqual St., Pasadena, Cal.
C. S. Burns, Harrison, Ark., to Davis, I. T.
A. Caspe, 253 E. Broadway to 42 Rivington St., New York City.
Chas. Chapin, 1100 Tracy St., to 805 E. 14th St., Kansas City, Mo.
E. L. Clough, Oakdale, La., to Lake Charles, La.
J. J. Cavanaugh, Garland, Kan., to Arcadia, Kan.
J. R. Culbertson, Gray Court, S. C., to Washington, Ga.
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M. W. Glasson, 701 S. Cherry St., to 632 S. College St., Nashville, Tenn.
L. C. Grady, 1100 Tracy Ave., to 805 E. 14th St., Kansas City, Mo.
T. A. Grace, Kansas City, Mo., to Orrick, Mo.
J. T. Greenwood, St. Louis, Mo., to Lone Star, Tex.
R. Graham, Seaton, Ill., to Biggsville, Ill.
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A. A. Heinemann, 94 Goethe St., to 56 Goethe St., Chicago, Ill.
G. T. Hunter, Hotel Granada, to 952 Bush St., San Francisco, Cal.
H. E. Jones, Hotel Racine, to 211 6th St., Racine, Wis.
W. B. Kern, Woodriver, Neb., to Hastings, Neb.
Adolfo Luria, 291 Division St., to 291 W. Division St., Station F. Chicago, Ill.
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H. Williamson, 270 Woodward Ave., to 52 Forest Ave., Detroit, Mich.
C. Wetherbee, 706 Woodward Ave., to 327 Brush St., Detroit, Mich.
L. G. Witherspoon, 909 W. North Ave., to 1002 W. Madison St., Chicago, Ill.

The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., Jan. 31 to Feb. 6, 1901, inclusive:

William Aiden, acting asst.-surgeon, from the General Hospital, Presidio of San Francisco, Cal., to duty with troops en route to Manila, P. I., and for subsequent assignment in the Division of the Philippines.

Guy G. Bailey, acting asst.-surgeon, leave of absence from the Department of California extended.

William P. Banta, acting asst.-surgeon, relieved from further duty in the Division of the Philippines and assigned to duty in the General Hospital, Presidio of San Francisco, Cal.

Henry D. Belt, acting asst.-surgeon, assigned to temporary duty at Fort Trumbull, Conn.

James Carroll, acting asst.-surgeon, from Columbia Barracks, Cuba, to Washington, D. C., for duty in the pathological laboratory of the Army Medical Museum.

William D. Crosby, captain and asst.-surgeon, U. S. A., member of a board in New York City to examine officers of the Corps of Engineers, for promotion.

Matthew A. DeLaney, acting asst.-surgeon, from the National Soldiers' Home, Va., to temporary duty at Fort Monroe, Va.

J. Ryan Devereux, acting asst.-surgeon, member of a promotion board at Washington, D. C., vice Captain E. L. Munson, asst.-surgeon, U. S. A., relieved.

Calvin De Witt, lieut.-col., deputy surgeon-general, U. S. A., leave of absence granted on account of sickness.

Joseph B. Girard, major and surgeon, U. S. A., leave of absence granted.

Albert Hartsuff, col., asst.-surgeon-general, U. S. A., retired from active service, Feb. 4, 1901, by operation of law.

Willis S. Horne, acting asst.-surgeon, from Marlin, Tex., to duty at San Antonio, Tex.

Henry S. Kilbourne, major and surgeon, U. S. A., member of a board in New York City, N. Y., to examine officers of the Corps of Engineers for promotion.

F. M. McCallum, acting asst.-surgeon, from Jefferson Barracks, Mo., to Fort Reno, O. T., and return, on temporary duty.

James C. Merrill, major and surgeon, U. S. A., member of a board at the Army Medical Museum, Washington, D. C., to examine medical officers for promotion, temporarily relieving Col. A. A. Woodhull, asst.-surgeon-general, U. S. A.

John W. Ross, surgeon, U. S. N., retired, on duty under the War Department, is assigned to service in the Department of Cuba.

Edward A. Southall, acting asst.-surgeon, from the General Hospital, Presidio of San Francisco, Cal., to duty with troops en route to Manila, P. I., and for subsequent assignment in the Division of the Philippines.

August von Clossman, acting asst.-surgeon, now in St. Louis, Mo., to report for duty as examiner of recruits in that city.

Joseph W. Walsh, acting asst.-surgeon, from Brooklyn, N. Y., to duty at the General Hospital, Washington Barracks, D. C.

Marshall W. Wood, major and surgeon, U. S. A., to take charge of the medical supply depot at St. Louis, Mo., during the temporary absence of Major J. B. Girard, surgeon U. S. A.

In addition to the above, the following named acting asst.-surgeons were directed, Feb. 1, 1901, to proceed from the places set opposite their names to San Francisco, Cal., for duty with troops en route to Manila, P. I., and for subsequent service in the Division of the Philippines: Polk D. Brown, Hartsville, Tenn.; Henry M. Hall, Cedartown, Ga.; Melville A. Hayes, Washington, D. C.; Edgar W. Miller, Chicago, Ill.; Frank W. Pease, Wahpeton, N. D.; Julius M. Purnell, Paris, Ky.; Anton R. Schier, Oconomowoc, Wis.

Boards to Examine Candidates for Admission Into the Medical Corps of the Army.—Special Orders No. 28, of Feb. 2, 1901, Headquarters of the Army, Adjutant-General's Office, Washington, D. C., provide for the organization of two boards on Monday, Feb. 11, 1901, at 10 o'clock a.m., or as soon thereafter as practicable, for the examination of candidates for admission to the Medical Corps of the Army. These boards will be governed in their proceedings by such instructions as may be communicated to them by the Surgeon-General of the Army. One is appointed to meet at the Army Medical Museum Building, Washington, D. C. It will consist of Col. Alfred A. Woodhull, asst.-surgeon-general, U. S. A.; Maj. Louis A. La Garde, surgeon, U. S. A.; Capt. William C. Borden,

asst.-surgeon, U. S. A., and Capt. Frank R. Keefer, asst.-surgeon, U. S. A. The other is directed to meet at the U. S. General Hospital, Presidio of San Francisco, Cal. Its membership consists of Lieut.-Col. Benjamin F. Pope, deputy surgeon-general, U. S. A.; Lieut.-Col. Alfred C. Girard, deputy surgeon-general, U. S. A.; Maj. Robert J. Gibson, surgeon, U. S. A., and Capt. William H. Wilson, asst.-surgeon, U. S. A.

Navy Changes.

Changes in the Medical Corps of the Navy for week ended Feb. 9, 1901:

P. A. Surgeon J. A. Guthrie, detached from the *Franklin* and ordered to the *New York*, February 18.

Surgeon A. M. D. McCormick, detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Academy, February 2.

P. A. Surgeon R. Spear, detached from the *Buffalo*, on arrival at Cavite, and ordered to the *Isla de Luzon*.

Asst.-Surgeon W. B. Grove, detached from the *Vermont* and ordered to the Naval Hospital, New York.

Asst.-Surgeon W. H. Bucher, detached from the Naval Hospital, New York, and ordered to Naval Hospital, Norfolk, Va.

Asst.-Surgeon M. V. Stone, detached from the *Isla de Luzon* and ordered to the *Buffalo*.

Medical Inspector E. Z. Derr, ordered to the Naval Academy, February 14.

Surgeon W. R. DuBose, detached from the Naval Academy, February 13, and ordered to the *Wisconsin*.

Medical Inspector D. M. Bertolette, ordered to the *New York*, February 16.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the U. S. Marine-Hospital Service for the seven days ended Feb. 7, 1901:

Surgeon Preston H. Bailhache, relieved from duty as chairman of the board for the physical examination of Second Asst.-Engineer R. F. Halpin, R. C. S., Feb. 4, 1901.

Surgeon G. T. Vaughan, detailed as chairman of the board for the physical examination of Second Asst.-Engineer R. F. Halpin, R. C. S., Feb. 4, 1901.

Asst.-Surgeon G. M. Corput, bureau order of January 26, directing Asst.-Surgeon Corput to proceed to Cleveland, Ohio, for temporary duty, revoked, Feb. 2, 1901.

Asst.-Surgeon Edward Francis, to proceed to Cleveland, Ohio, and assume temporary command of the service during the absence on leave of Surgeon Pettus, Feb. 2, 1901.

Acting Asst.-Surgeon J. C. Ballard, granted leave of absence for five days from February 7, Feb. 4, 1901.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended Feb. 9, 1901:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Jan. 26-Feb. 2, 1 case.
Illinois: Chicago, Jan. 26-Feb. 2, 4 cases, 1 death.
Kansas: Lawrence, Jan. 26-Feb. 2, 2 cases; Leavenworth, Jan. 1-31, 4 cases; Wichita, Jan. 26-Feb. 2, 22 cases.
Kentucky: Lexington, Jan. 26-Feb. 2, 2 cases.
Louisiana: New Orleans, Jan. 26-Feb. 2, 9 cases, 2 deaths.
Massachusetts: Lawrence, Jan. 26-Feb. 2, 2 cases.
Michigan: Grand Rapids, Jan. 26-Feb. 2, 1 case; Manistee, Jan. 26-Feb. 2, 4 cases.
Montana: Butte, Dec. 26-Jan. 20, 39 cases.
Nebraska: Omaha, Jan. 19-Feb. 2, 6 cases.
New Hampshire: Manchester, Jan. 26-Feb. 2, 32 cases.
New York: New York, Jan. 26-Feb. 2, 50 cases, 2 deaths; Utica, Jan. 19-29, 1 case.
North Dakota: Morton County, Jan. 30, 10 cases.
Ohio: Ashtabula, Jan. 26-Feb. 2, 2 cases; Cleveland, Jan. 26-Feb. 2, 49 cases, 3 deaths.
Pennsylvania: Allegheny City, Jan. 26-Feb. 2, 5 cases; Erie, Jan. 26-Feb. 2, 2 cases; Pittsburg, Jan. 26-Feb. 2, 8 cases.
South Carolina: Greenville, Jan. 26-Feb. 2, 1 death.
Tennessee: Jackson, Jan. 1-31, 20 cases, 2 deaths; Memphis, Jan. 26-Feb. 2, 18 cases; Nashville, Jan. 26-Feb. 2, 4 cases.
Texas: Galveston, Jan. 12-26, 37 cases.
Utah: Ogden, Jan. 1-31, 32 cases; Salt Lake City, Jan. 26-Feb. 2, 29 cases.
Wisconsin: Eau Claire, Jan. 22, 12 cases; Washington Township, Jan. 22, 20 cases; Green Bay, Jan. 26-Feb. 2, 1 case; Milwaukee, Jan. 26-Feb. 2, 2 cases.

SMALLPOX—FOREIGN.

Austria: Prague, Jan. 5-12, 21 cases.
Belgium, Antwerp, Jan. 12-19, 3 cases.
Brazil: Rio de Janeiro, Dec. 1-15, 27 deaths.
England: Bradford, Jan. 23, 4 cases; Newcastle on Tyne, Jan. 12-19, 6 cases.
India: Calcutta, Dec. 15-29, 72 deaths; Karachi, Dec. 16-23, 5 cases.
Japan: Korea, Seoul, Dec. 22, many cases and deaths.
Russia: Moscow, Jan. 5-12, 2 cases, 1 death.
Scotland: Glasgow, Jan. 18-25, 324 cases, 3 deaths.
Spain: Barcelona, Nov. 25-Dec. 30, 71 deaths.

YELLOW FEVER.

Colombia: Cartagena, Jan. 8-13, 3 deaths.
Cuba: Cienfuegos, Feb. 1, 1 case; Havana, Jan. 22-29, 1 death.

CHOLERA.

India: Calcutta, Dec. 15-29, 87 deaths.
Straits Settlements: Singapore, Dec. 8-15, 25 deaths.

PLAGUE—UNITED STATES.

California: San Francisco, Jan. 12-19, 2 cases, 2 deaths.

PLAGUE—FOREIGN.

India: Calcutta, Dec. 15-29, 46 deaths.
Japan: Osaka, Dec. 22-Jan. 7, 3 cases; Wakayama, Dec. 22-Jan. 7, 1 case.
Turkey: Smyrna, Dec. 30-Jan. 6, 1 death.

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